COAL AGE

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The Coal Miner's Safety Pledge

I WILL PRACTICE SAFETY FIRST FOR MY OWN SAKE—life is sweet. I am proud of my strength, happy that I can load out a "crossing." My body is whole, my limbs are sound and my eyes are clear. I will keep these blessings. My life is mine to use, not to misuse. My strength is mine to use, not to abuse.

I WILL PRACTICE SAFETY FIRST FOR MY BUDDY'S SAKE—In the mine I am not alone. My own life is a little thing compared with the lives of all my fellow-workmen. I will play safe that I may not see the mangled forms of many miners, the reproach in the eyes of widows and the helplessness of half-clad orphans.

I WILL PRACTICE SAFETY FIRST FOR MY FAMILY'S SAKE. The wife needs me to stand by her when trouble comes; to keep food in the larder and a little money in the bank. The children look to me for a home and an education. They want their chance in life; I will not fail them nor shirk my responsibilities.

I WILL PRACTICE SAFETY FIRST FOR MY EMPLOYER'S SAKE. My company has been on the square with me, and my loyalty shall not be expressed in lip service, but by doing my share to attain the goal for which the concern is striving—a safe mine.

I WILL PRACTICE SAFETY FIRST FOR THE SAKE OF SOCIETY AT LARGE. I am a part of humanity. The little fragment of the universe where I move will be impressed by my character; others may follow my example. By being a careful workman I can do more to promote safety than can be done by a safety bulletin, a guarded machine or a well-lighted entry.

For the sake of myself, my fellow-workmen, my family, my employer and all mankind, I stand for—SAFETY FIRST.

(By George N. Lantz, New Straitsville, Ohio).

Ideas and Suggestions

Shifting the Screen Drive

The vibration became so severe in the tipple at the Brushy Mountain coal mine, on account of the thrust of an unbalanced shaking screen, that alarming conditions, threatening the timber structure, developed, disarranging the alignment of the shafting. I overcame this difficulty by the scheme shown in the accompanying illustration of the front of the tipple and bins.

A simple frame consisting of 12x12 uprights, securely bolted to 12x12 caps and sills and braced to withstand the thrust of the eccentrics on the driving shaft, was erected. A timber crib composed of 4x6-in. timbers was constructed on the inside of this frame and loaded with rock, to assist in holding the entire structure to its foundation.

From the top of sills to the top of caps is 14 ft. In a front elevation of the structure the uprights are 9 ft. 2

FRONT VIEW OF TIPPLE AFTER ALTERATIONS

in. on centers; on the side they are 7 ft. on centers. The sills are 14 ft. long and are securely bolted to the foundation by 1½-in. bolts 2 ft. long.

On this frame is placed the driving shaft carrying one 34x14-in. pulley, one 72-in. balance wheel and two eccentrics with their pitman rods. The latter are built from 2½-in. double-strength pipe, 26½ ft. in length, with an eye at one end, to attach to a 2½-in. square machine-steel shaft, fastened to the shaking screen by straps, near the center of gravity of screen and load; at the other end it is attached to the eccentrics.

The pitman rods are trussed on the top and bottom with ½-in. iron rods of the "hog-chain girder" type to give stiffness. The driving shaft is 3 15/16 in. in diameter and 11½ ft. long. The screen is 6 ft. wide and 22 ft. in length, and handles 1,000 tons of coal in 8 hr. during the winter season.

The cost of changing the driving mechanism of the screen, from the tipple timbers to this isolated structure and buying two new eccentrics and a shaft with boxes and set collars and constructing two new pitman rods was as follows:

Lumber, 3,898 ft. @ $10 per M.	$38.90
Labor of framing and erecting	14.40
Iron detail, 515.04 lb. @ 3c.	15.45
52 ft. of 2½-in. E.H. pipe @ 24c.	12.48
104 ft. of ½-in. round iron	2.06
7 ft. of machinery steel, 2½ in. square	4.13
2 new eccentrics complete	95.75
1 eccentric shaft, 11 ft. 6 in. long by 3 15/16 in. diameter	20.41
3 plain boxes	9.42
4 set collars	6.48
Blacksmith work	5.00
Foundation:	
16 bags of portland cement @ 43c.	6.88
2 cu.yd. of sand @ $1.	2.00
4 cu.yd. of stone @ $1.34	5.36
Labor	12.40
Total	$251.12

A "Free-Lance" in Coal Mining

By Mining Engineer

Where large coal companies have been in existence for a long period of years, there generally comes a time in their career when the canker of the business dropping into a rut strikes the organization. The administration forgets that times change and men and machinery progress. New devices are continually being invented and tried out somewhere, and on the success of these inventions new and more progressive concerns rise and push the older ones to the wall. The continually successful company is the one that keeps well abreast of new developments and bears its share of the pioneer work necessary.

But in many of the older companies things are done the same way for decades, until the time comes when the business recedes. They have lost initiative and cannot then make good the lost years of progress. The simplest illustration of this is the old-fashioned colliery which was a success for many years in the days of the thick coals, but which, when changing conditions brought about the necessity of working the thinner seams, failed to rise to the occasion and gave up in despair. Later, perhaps another concern, organized to meet the new conditions, obtained the same area and succeeded in making the field pay again as in the days of old. They employed new men, new methods and new ideas.

To meet this insidious growth of old age, to combat the egotistical feeling that believes itself and past efforts more than equal to future competition, the suggestion is made that there is room in the organization of the larger companies for a "free-lance"—an employee of no fixed position, but whose business it would be to watch for new ideas and suggestions, unhampered by being the holder of a traditional position.

A man of some ability should be chosen, and particularly one blessed with that quality called initiative. Essentially, the position implies power to foresee the trend of mining development, carrying with it the

obligation to be continually on the watch for the things that are of the future.

The opportunity presented is largely along the lines of research and search among the doings of the coal industry generally, with a view to the transplanting of ideas inaugurated elsewhere to the particular conditions of the mine wherein the "free-lance" is employed.

There are few colliery companies that cannot be improved by an admixture of fresh ideas and new blood. The continuous operation of any mine loses interest to even the rank and file of the men employed if it so be that there is nothing new to conquer and no problems to solve. The "free-lance" would be of value in helping to retain the best of the workmen in the company's service. There is nothing so deadly to progress generally, as monotony.

Removing a Large Master Gear

By H. J. Nelms*

The master gear driving the head sprocket of a haulage chain operating on a 300-ft. slope and a 27-per cent. grade became worn out and it was decided to change it. When this gear was changed once before, the mine was shut down three days. This time the following method was used, and the chain haul was operating 18 hr. after being stopped.

The gear wheel was 10 ft. in diameter with a 15-in. face. The key holding the wheel on the shaft was 2½ in. square and 16 in. long. It was not provided with a gib. The pinion was 14 in. in diameter and was held by a 1½-in. square key. Both gear and pinion had been operating four years, and it was said that it had taken two men using a 10-lb. sledge 6 hr. to drive the keys home.

The keys were both driven flush with the hubs and shafts. On the side from which it was necessary to drive them out, ties, rails and timbers supporting the gear and pinion took up all the room, so that it would be necessary to tear the material out to get at the keys. The distance from the ground up to the gear wheels was 36 ft. The keys looked as if they were as tight as the day they were first driven.

The first thing done was to build a 4-legged tower over the gear wheel, to which a set of 5-ton chain blocks were attached (the gear weighed 2 tons). This tower was necessary because the gears operated in a frame tipple.

It was then decided that the best way to get the key out of the large gear was to dynamite it out. I took a stick of 40-per cent. dynamite and cut it up into sections 1 in. long. Placing the first 1-in. piece against the end of the key, I shot it and the key moved ½ in. The next shot moved it about 1 in. It took seven shots to drive the key out.

This is a dangerous operation and great caution should be exercised where it is employed. Only small amounts of dynamite should be used for this work. In no case should the charge of explosive be increased if the first shot only starts the key. Successive shots should all be small until it is driven out.

After getting the key out, the chain-haul engine was started, as the gear was still tight on its shaft. The weight of the 300-ft. chain haul was so great that the gear wheel soon began to slip on the shaft. The wheel was then pried over till it was about halfway off, when the engine was stopped and the blocks were attached to the wheel. The chain blocks were tightened up, the wheel was blocked in place and the engine again started. After several minutes of prying on the side of the hub, the gear was swinging free in the air. It was then lowered to the ground.

The next job was to remove the pinion. This was done in the same way by firing 7 shots of dynamite 1 in. long behind key. When this key was out the pinion was found to be loose on the shaft, so that it was gradually worked off. The entire operation so far consumed 8 hr. and required the services of 7 men besides myself.

The new pinion went on easily, and it was not long before it was keyed in place. The large gear was next placed on the shaft and worked and jacked until it partly meshed with the pinion. The chain blocks were then detached and the engine was started, and in a short time the large gear was in place and ready to be keyed.

This second operation, that of installing the new gear and pinion, was completely finished in 10 hr. It took 7 men besides myself to complete the entire job in 18 hr., and as we started Saturday afternoon at 4 o'clock, we were finished before Sunday noon, the mine not losing any operating time.

Where dynamite is used for this kind of work, care and good judgment should be exercised. When we noticed that the key had moved ½ in. with the first shot, my assistant was in favor of using 2 in. of dynamite for the next charge, but I would not permit him to do so. I remember one occasion where a master mechanic did this on a fan-motor shaft in removing a Morse chain sprocket. Because the first shot did not move the key, he doubled the amount on the next shot and broke the shaft clean off. No one except the person in charge should do the firing or judge the amount of explosive to use. If the first shot does not move the key, it can be started by firing several more without increasing the quantity of dynamite.

*Ellwood City, Penn.

A Soldering Kink

I have just run across a scheme to help in soldering. It is new to me and may be to others, says W. B. Greenleaf in *American Machinist*. As everyone knows, steel will rust after it is soldered, if not thoroughly cleaned. The scheme is to prevent this action.

Most small shops have a soldering iron and a jar of acid for odd jobs. Keep some soda water (washing soda) alongside the acid, and either dip the work into the soda or swab it with a brush or cloth. My work is small, and I have two 8-oz. screw-topped bottles—one acid, the other soda water—both set into one block of wood.

I have been using this outfit for two months and have had no trouble with rust.

BY THE WAY

It is pride, not nature, that craves much.

The man who is too proud to ask is generally too good to receive.

It's foolish to try and fly like an eagle when you only have the wings of a wren.

The fellow who puffs up with the first gale of prosperity, will bend and break beneath the first blast of adversity.

Some Modern Coal Tipples--II

By Henry J. Edsall*

SYNOPSIS—Some further descriptions of new mining plants embodying the latest developments in equipment for preparing the coal. The author concludes his article with some pertinent comments concerning this branch of coal engineering.

The Warrior Coal Co.'s plant is shown in Figs. 1 and 2. It is located at War, W. Va., on the Dry Fork branch of the Norfolk & Western R.R. and was built in 1915. The coal is comparatively clean, and as most of the impurities occur in the larger pieces, the picking is done entirely on the conveyor leading from the dump hopper to the screens.

The coal is fed from the hopper by means of a feeder and passes over a lip screen so as to bring the slack on the bottom and then goes to the apron conveyor on which the picking is done and from which the coal is discharged to the shaking screens. The apron conveyor is 5 ft. wide by 75 ft. centers and is set at a slight incline. The refuse removed from the coal is dropped into a hopper and taken away by mine cars. The shaking screens are 6 ft. wide and of the double balanced type.

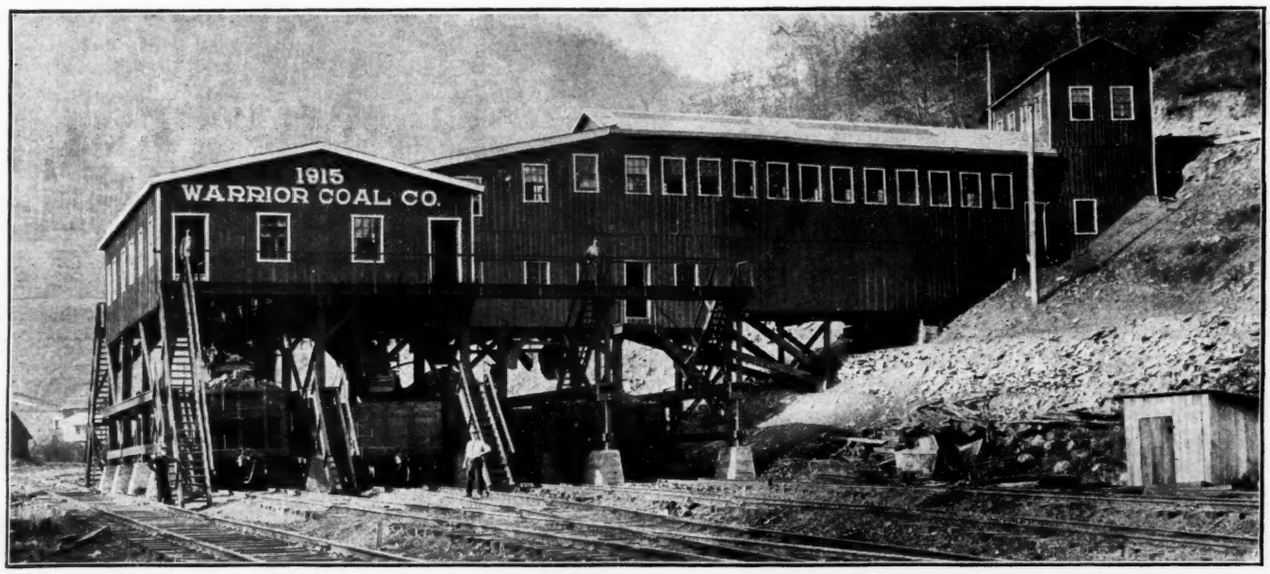


FIG. 1. GENERAL VIEW OF THE WARRIOR COAL CO.'S PLANT

There are four tracks under the screenhouse, the lump and egg coal, or run-of-mine, being loaded on two of these by means of loading booms and stoker coal being loaded on the remaining two by means of chutes. Provision is also made for loading run-of-mine by means of an emergency chute in case it is necessary to shut down the shaking screens or loading booms for repairs.

The plant of the Tierney Mining Co. is shown in Fig. 3. In general arrangement it is somewhat similar to the plant of the Warrior Coal Co. just described. It is located at Stone, Ky., on the Williamson & Pond Creek branch of the Norfolk and Western R.R. The tipple has a capacity of 400 tons per hr. and is equipped with balanced shaking screens 8 ft. wide. Lump and egg coal is loaded by means of loading booms, and there are horizontal sections of these loading-boom conveyors used as picking tables. Provision is also made so that the slack and nut can afterward be recombined with the egg and lump, thereby making a carefully picked run-of-mine.

The coal is transferred from the dump hopper to the shaking screens by means of an apron conveyor set at a slight downward incline, and the preliminary picking is done on this conveyor. A reciprocating feeder delivers the coal over the lip screen to the apron so that, as in previous cases, the slack will be on the bottom and the lump on top. The screens separate the coal into lump, egg, nut and slack, which can be loaded separately on four different tracks, two of these being served by loading booms and two by means of chutes; or by means of a mixing conveyor, the smaller sizes can be added to the larger so as to form almost any combination desired. The lower run of the mixing conveyor acts also as a refuse conveyor and takes the refuse up to a hopper on the hillside from which it is removed by mine cars.

The apron conveyor from the dump hopper to the screens is 5 ft. wide by 73 ft. centers; this conveyor, the screens and a small cross-conveyor for transferring slack to the mixing conveyor are all driven by a 35-hp. motor. The two loading-boom conveyors are driven by a 10-hp. motor. The mixing and refuse conveyor, which is of the flight-conveyor type with two strands of chain, is driven by a 20-hp. motor. The tipple structure is built entirely of wood.

Figs. 4 and 5 show two interior views of the steel tipple of the Allegheny River Mining Co., at the Cagodan mine, on the Allegheny River, opposite Logansport, Penn. At this mine two seams of coal are mined, the lower Freeport and the upper Kittanning, and the tipple is built double so that the two kinds of coal can be handled separately or combined in any proportion desired. Each of the two sets of equipment has a capacity of 250 tons per hr., which

*Engineer with the Link Belt Co., Philadelphia, Penn.

makes a total possible capacity for the tipple of 500 tons per hr.

The mine cars are brought in on two tracks, each of which has its own dump hopper and its own kickback for running the empties back on another track, where they are picked up by a short car-haul conveyor and taken up to a somewhat higher level for making up into trains. This arrangement brings the dumphouse down close to the ground level and reduces the amount of structure necessary. Each dump hopper delivers to an inclined apron conveyor 3 ft. 6 in. wide by 120 ft. centers, which takes the coal up an incline and delivers it to two sets of double balanced shaking screens 6 ft. wide. The screens separate the coal into slack, nut and lump, the smaller sizes being delivered by means of chutes to cars on two tracks under the screenhouse and the larger sizes to two other tracks by means of loading booms.

The picking is done on horizontal sections of the loading-boom conveyors. For taking care of the bone and refuse, there is a double-chain flight conveyor with a partition in the middle so that the bone can be handled on one side and the refuse on the other; this is done so that the bone may be crushed and used in the boilers, whereas the refuse is taken away in mine cars and disposed of. This same partition flight conveyor connects with a cross-conveyor, which is also partitioned and takes care of the mixing of the smaller with the larger sizes and also the mixing of the two coals from the different seams. In addition to this, there is an emergency run-of-mine chute leading from the head of each apron conveyor, so that unprepared coal can be delivered to cars on one track in case the screens or loading booms are shut down for repairs.

The motive power is derived from two 50-hp. motors for the apron conveyors and the screens, one 25-hp. motor for the refuse conveyor and crusher, one of the same horsepower motor for the trip feeder, another for the trip maker, one 5-hp. motor for the boiler-house conveyor and one 7½-hp. motor for the reciprocating feeder. This tipple is built with steel frames covered with corrugated iron, with ample windows and wire-glass skylights for giving plenty of light and with trimmer walks alongside of the railroad cars for use of the trimmers.

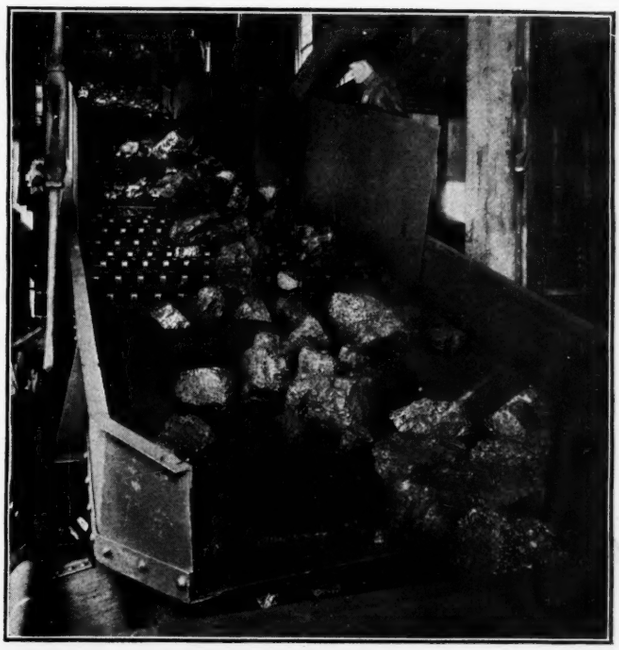


FIG. 2. SHAKING SCREEN AND LOADING BOOM AT THE WARRIOR COAL CO. PLANT

The Powhatan Coal and Mining Co.'s Plant

A very complete steel tipple, just under construction at this writing, is shown in Figs. 6 and 7, this plant being designed for the Powhatan Coal and Mining Co., at Powhatan, W. Va. In this case the preparation is to be carried still further by separating the pea and slack coal, the device for accomplishing this being a rotary cylindrical screen. It obviously would not be feasible to attempt to separate these very small sizes by use of a shaking

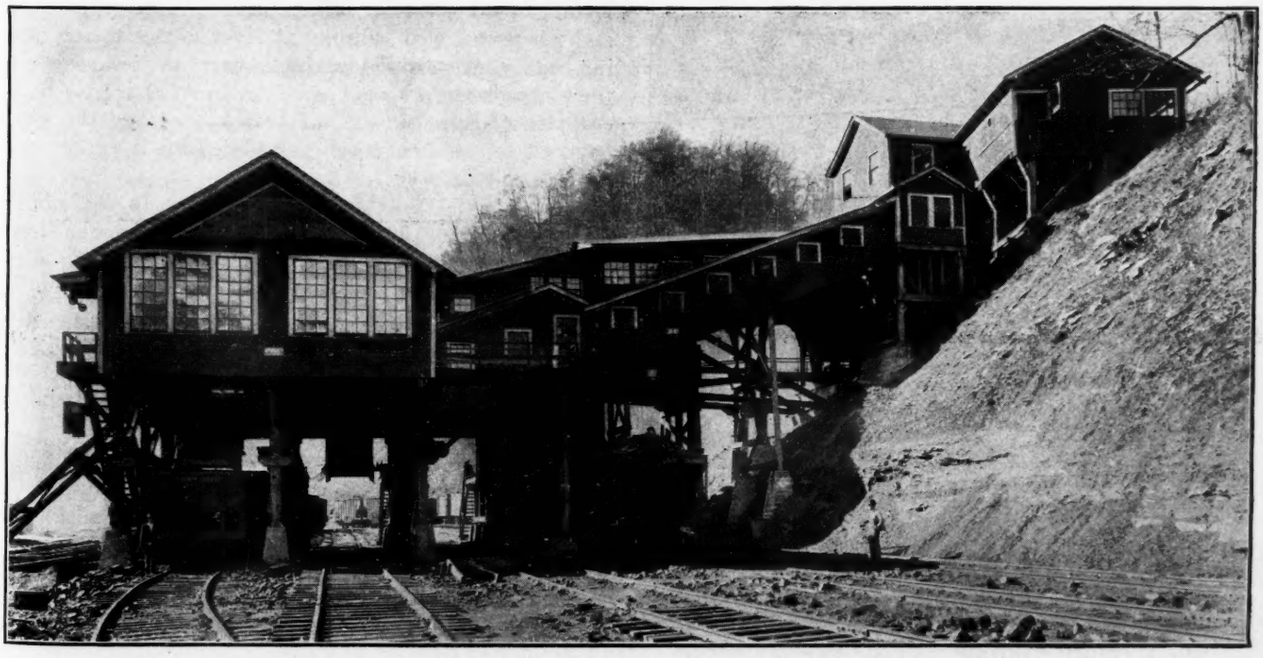


FIG. 3. TIPPLE ARRANGEMENT OF THE TIERNEY MINING CO.

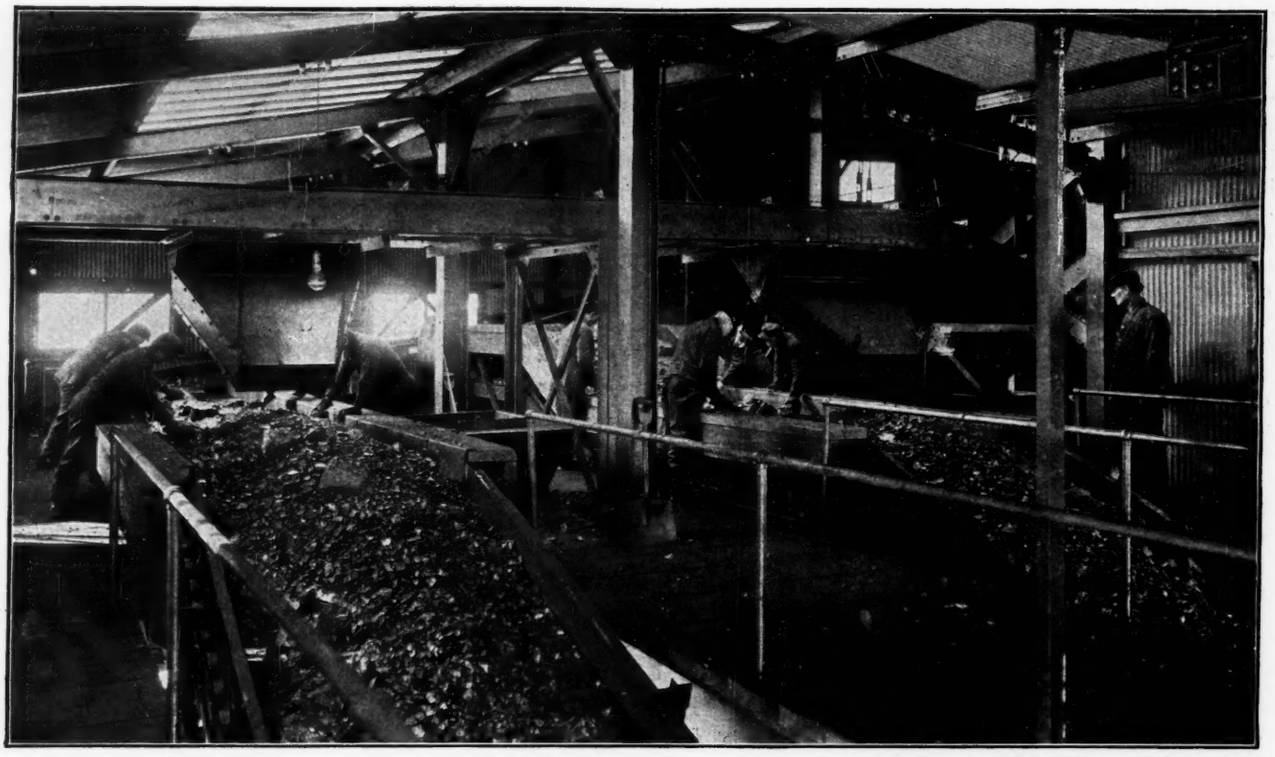


FIG. 4. PICKING TABLES AND LOADING BOOMS OF THE ALLEGHENY RIVER MINING CO.

screen, as the slack would tend to pass over the small openings instead of going through them.

The dumphouse in this case is up on a hillside, and the coal is lowered to the screens by means of a retarding conveyor of the double-strand flight type. The shaking screens are 8 ft. wide and of the double balanced type. There are five tracks under the screenhouse, three of these being served by loading booms and two by chutes. The sizes into which the coal is to be separated are lump, egg, nut, pea and slack, and the picking is to be done on horizontal sections of the loading-boom conveyors.

FIG. 5. DUMP SHED OF THE ALLEGHENY RIVER MINING CO.

The refuse is to be taken care of by means of a double-strand flight conveyor, the upper run of which will connect with a cross-conveyor and also act as a mixing conveyor for mixing the smaller sizes with the larger. The cross-conveyor also transfers the pea and slack to a short inclined conveyor which in turn delivers to a gravity-discharge elevator conveyor, with V-shaped buckets between two strands of roller chain, which takes these sizes up to the rotary screen. The rotary screen delivers the pea coal to a 150-ton pea bin and the slack to a 300-ton slack bin underneath the shaking screens at the rear end of the loading-boom conveyors. There is also a conveyor for pea and rescreened coal running at right angles to the loading-boom conveyors and serving to carry the pea coal from the bin over to the outside track or to a hopper for house coal; the lower run of this conveyor takes the slack from the rescreen hoppers over and delivers it to the cross-slack conveyor.

The rescreened coal comes from screens in the hoppers or chutes underneath the shaking screens so that the larger sizes are rescreened in this manner and any slack taken out, thereby making a more perfectly screened coal on the loading-boom conveyors. The gravity-discharge machine encircles the pea and slack bins, the upper run taking the slack out and delivering it to the bin and the lower run bringing the pea back and delivering it to the pea and rescreenings conveyor.

This tipple is built entirely of steel covered with corrugated iron. Ample provision is made for light at the various points required, and it is provided with all the latest devices for the best possible operation. The capacity is 450 tons per hr. The slack coal in this case is to be drawn out from the bin to larries and used in coke ovens, and the refuse is to be drawn out from the bottom of the refuse bin and disposed of.

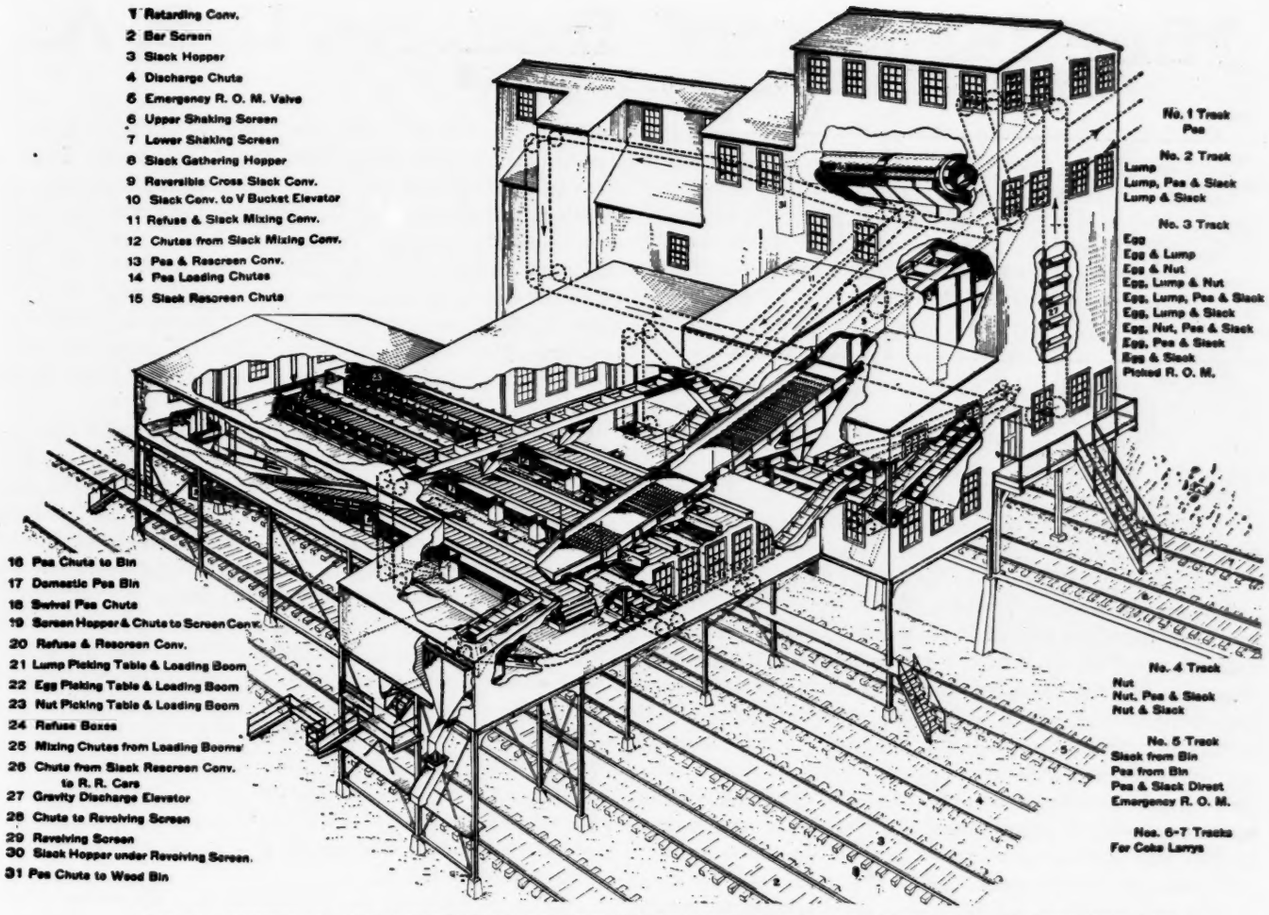

1 Retarding Conv.
2 Bar Screen
3 Slack Hopper
4 Discharge Chute
5 Emergency R. O. M. Valve
6 Upper Shaking Screen
7 Lower Shaking Screen
8 Slack Gathering Hopper
9 Reversible Cross Slack Conv.
10 Slack Conv. to V Bucket Elevator
11 Refuse & Slack Mixing Conv.
12 Chutes from Slack Mixing Conv.
13 Pea & Rescreen Conv.
14 Pea Loading Chutes
15 Slack Rescreen Chute
16 Pea Chute to Bin
17 Domestic Pea Bin
18 Swivel Pea Chute
19 Screen Hopper & Chute to Screen Conv.
20 Refuse & Rescreen Conv.
21 Lump Picking Table & Loading Boom
22 Egg Picking Table & Loading Boom
23 Nut Picking Table & Loading Boom
24 Refuse Boxes
25 Mixing Chutes from Loading Booms
26 Chute from Slack Rescreen Conv. to R. R. Cars
27 Gravity Discharge Elevator
28 Chute to Revolving Screen
29 Revolving Screen
30 Slack Hopper under Revolving Screen
31 Pea Chute to Wood Bin
No. 1 Track
Pea
No. 2 Track
Lump
Lump, Pea & Slack
Lump & Slack
No. 3 Track
Egg
Egg & Lump
Egg & Nut
Egg, Lump & Nut
Egg, Lump, Pea & Slack
Egg, Lump & Slack
Egg, Nut, Pea & Slack
Egg, Pea & Slack
Egg & Slack
Picked R. O. M.
No. 4 Track
Nut
Nut, Pea & Slack
Nut & Slack
No. 5 Track
Slack from Bin
Pea from Bin
Pea & Slack Direct
Emergency R. O. M.
Nos. 6-7 Tracks
For Coke Larrys

FIG. 6. GENERAL ARRANGEMENT OF THE POWHATAN COAL AND COKE CO.'S SCREENING AND LOADING ARRANGEMENT

The motive power provided is as follows: One 125-hp. motor for the gravity-discharge machine and revolving screens; one 60-hp. motor for shaking screens, cross-slack conveyor and conveyor to the gravity-discharge machine; one 50-hp. motor for picking tables and pea and rescreening conveyors; one 30-hp. motor for refuse and mixing conveyor.

It will be readily seen from the description of these plants that each tipple proposition presents its own peculiar problems and requirements and that the designing of the equipment is a special branch of conveying-machinery engineering, requiring a great deal of experience and familiarity with all sorts of devices for accomplishing the desired results. The engineer must also have the proper sort of initiative for making the design, in order to get the devices and general arrangement best suited to the particular case, so that the equipment will meet the requirements and show the greatest return on the amount of money invested.

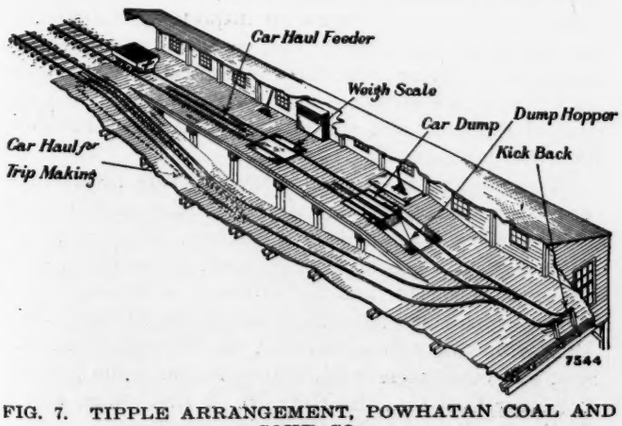


FIG. 7. TIPPLE ARRANGEMENT, POWHATAN COAL AND COKE CO.

In Mesopotamia Coal Was Mined About Half a Century Ago in the northern section of this ancient province at Harput, about 45 km. east of Jezireh. The product was used for a while on river boats plying on the navigable sections of the Tigris. The fluvial transportation industry appears to have stimulated research for the fuel, since a little mining was also undertaken for the same purpose in the Jebel Hamrin 90 km. northeast of Bagdad. Coal has also been found in the vicinity of Mosul, but the deposit has not been worked. At about 160 km. northeast of Bagdad a small amount of coal has been mined by the natives since 1890. Mining is confined to the low hills lying east of Kifri, near the Nasalah village. The coal is won from open cuts and shallow workings. Its quality was found to be poor at that level, and deeper digging has not yet been undertaken.—Leon Dominan in Transactions of the A. I. M. E.

The Coal-Mine Power House is one of the most important parts of a mining plant. The editors of "Coal Age" have been asked so often recently to devote a greater amount of attention to power matters that it has been decided to collect all articles of a power nature and publish them regularly in a department devoted to that phase of the industry. The success of this plan depends upon the interest of the coal men themselves in the work. We invite every man in mining who has a few minutes' time to send us one or more articles covering some successful power plant, or some important installation that is in actual operation. All articles should be illustrated whenever possible. Short articles are particularly desired. Rates of payment will be liberal.

Mine Inspectors' Institute, U. S. A.

SPECIAL CORRESPONDENCE

SYNOPSIS—A representative gathering of the coal and metal-mine inspectors of the entire country. Valuable papers read and important subjects relating to mining discussed by members. Banquets and tours of inspection to the mines and smelteries in the Joplin district and a visit to the mines at Pittsburg, Kan., completed the program.

The ninth annual meeting of the Mine Inspectors' Institute of the United States of America was held at the Conner Hotel, Joplin, Mo., June 13-15, 1916. While the attendance was not as large as usual, it was quite as representative of the country as at former meetings, members being present from most of the coal-mining states, from Alabama and Oklahoma on the south to the provinces of Ontario and British Columbia on the north.

The several sessions of the institute were well attended by the 40 members and their friends. The members came well prepared to discuss the many important questions announced in the program, and there were some valuable papers presented, which were read and discussed. Many of the inspectors who had not prepared papers came to the meeting with well-digested notes relating to the subjects under discussion. So great was the desire of the inspectors present to get the most profit from the discussions that it was with some reluctance that the necessary time was given to the enjoyable trips that had been planned by the committee of arrangements for the entertainment of the visiting members and their friends.

Perhaps one of the most valuable papers ever presented at any meeting of the institute was that read by Thomas Graham, chief inspector of mines for British Columbia. Mr. Graham's paper was entitled "Some Gaseous Mines in the Crow's Nest Pass Coal Field." It was well remarked that a few papers of the high order of this one would make the transactions of the institute classical, in the view of mine inspectors.

Another paper that held the close attention of the members was that prepared by Edwin Higgins, chief mine inspector of California. This paper was entitled "California Mine Inspection and the Safety-Bear Movement." In the absence of Mr. Higgins, who was unavoidably prevented from attending the meeting, his paper was read by the secretary of the institute. The paper outlined what the inspection service is doing in California to secure the coöperation of the miners and operators in safety measures and described in detail the organization and the operation of the "Safety-Bear Club," which is a recently formed safety organization with a large membership that is rapidly increasing in numbers and importance.

Among the subjects discussed, which had been previously announced, were the following: "The Use of Explosives in Oklahoma Mines"; "Ventilation at Times of Shooting in Iowa Mines"; "Stripping Operations in Kansas"; "Mining in Ontario, Canada"; "Safety in Underground Haulage"; "The Coal Mines of Missouri"; "The Zinc Mines of Southwestern Missouri"; "What Constitutes Efficiency in Mine Inspection"; "Use of Permissible Explosives in Alabama"; and "The Duties and Police Power of Mine Inspectors in British Columbia."

The subjects that elicited the liveliest discussion among the members present were "The Use of Permissible Explosives in Alabama Mines" and "The Use of Explosives in Oklahoma Mines." The discussion of the former subject was opened by C. H. Nesbitt, chief mine inspector of Alabama, and the latter by Edward Boyle, chief inspector of mines for Oklahoma. The result of the discussion of these two subjects was a more favorable consideration and indorsement of the use of permissible explosives than had been accorded them at any previous meeting of the institute.

On Wednesday afternoon, June 14, by special invitation of the American Zinc, Lead and Smelting Co., the members of the institute and their friends visited the Davey mine of the company, at Carterville, Mo. Both the underground workings of the mine and the concentrating mill were inspected. Previous to the visit C. M. Harlan, mine inspector, Carterville, Mo., had addressed the institute and given an interesting though brief outline of the methods of mining employed, and the treatment of the zinc-lead ore at the mills in the Joplin district. The same evening the members attended a banquet at the Conner Hotel, provided by the mine operators of southwestern Missouri. It goes without saying that the wholesomeness of the food served at the banquet and the sincerity of the toasts offered produced a lasting impression on the guests who enjoyed this hospitality so generously provided.

Again, at noon of the following day, Thursday, June 15, the members of the institute and their friends were the guests of the Safety and Sanitation Society at Webb City, where a generous lunch was served. At that time the officers of the society outlined its work and accomplishments, and a number of hearty responses were made by the visiting inspectors. The same evening the visiting mine inspectors and their friends were again banqueted at the Conner Hotel, their brother inspectors of Missouri being their hosts on that occasion. Both at this banquet and the one given by the operators the preceding evening, filtered spring water and decanted coffee were the sole liquid refreshments furnished.

By general consent the afternoon session was prolonged until 6 o'clock, in order to enable the members to complete the entire business of the institute that day, and accept the invitation of John Pellegrino, assistant commissioner of labor and state mine inspector of Kansas, who had addressed the institute and described in an interesting manner mining conditions in that state. It was arranged that the members and their friends should visit some of the shaft and openpit coal mines near Pittsburg, Kan., the following day.

Thus, on Friday, June 16, the institute members became the guests of the state mine inspectors of Kansas and the Chamber of Commerce of Pittsburg. The greater part of the day was devoted to visits made to the offices of the state mine inspector and the Chamber of Commerce, following which luncheon was served at the Stillwell Hotel. Automobiles were then placed at the disposal of the members, who were taken to the strip-pit mine of the Ellsworth & Klaner Coal Co., the Katy No. 2 shaft mine and the Joplin Smelter and Ore Co.'s zinc smeltery.

At one of the business sessions of the institute, the constitution was amended, changing the date of the annual meetings from the second Tuesday in June to the second Tuesday in July. This was done in order to avoid the conflict of the meeting with the commencement season of schools and colleges, which often prevented inspectors from being present.

A resolution was also adopted relating to the loss by death of Dr. Joseph A. Holmes, late director of the United States Bureau of Mines and an active member of the institute at the time of his death, which occurred July 12, 1915. The resolution expressed the high appreciation of the members for the work accomplished by Doctor Holmes and their regard for his personal character and untiring efforts in advancing the interests of mine inspection. Before final adjournment, upon the invitation of Michael Scollard, chief deputy mine inspector of Indiana, the institute selected Indianapolis as the place of its next meeting, July, 1917.

The membership was increased by the election of twelve mine inspectors. The following officers were also elected for the ensuing year: Thomas Graham, Victoria, B. C., Canada, president; L. D. Devore, Bellaire, Ohio, first vice-president; Rees H. Beddow, Gallup, N. M., second vice-president; Charles H. Nesbitt, Birmingham, Ala., third vice-president; James W. Paul, Pittsburgh, Penn., secretary; Thomas Kanary, St. Charles, Mich., assistant secretary; P. J. Moore, Carbondale, Penn., treasurer; J. T. Beard, New York City, editor-in-chief.

One of the gratifying aspects of the convention was the opinion expressed by many of the members that more time should be given to the consideration and discussion of mining topics and less to entertainment.

The following were the members in attendance:

Alabama—C. H. Nesbitt, chief mine inspector, Birmingham; Edward Flynn, inspector, T. C. I. & R.R. Co., Pratt City.

Kansas—John Pellegrino, assistant commissioner of labor, Pittsburg; Charles E. Paisley, deputy mine inspector, Pittsburg; Martin Kotzman, deputy mine inspector, Frontenac; James Sherwood, deputy mine inspector, Pittsburg.

Illinois—John Bohlander, president State Mining Board, Pekin; Ben D. Roberts, state mine inspector, Streator; John McClintock, state mine inspector, Murphysboro; James S. Reid, state mine inspector, Carterville; John Dunlop, safety inspector, Peoria; Thomas P. Back, Canton.

Indiana—Michael Scollard, state mine inspector, Indianapolis.

Iowa—W. E. Holland, state mine inspector, Albia.

Missouri—George Hill, chief mine inspector, Bevier; Walter W. Holmes, state mine inspector, Webb City; C. M. Harlan, state mine inspector, Carterville; Benjamin B. Fischer, state mine inspector, Lexington.

Oklahoma—Edward Boyle, chief mine inspector, Oklahoma City; Frank Haley, state mine inspector, Henryetta; J. J. Rutledge, mining engineer, McAlester.

Pennsylvania—J. W. Paul, consulting mining engineer, Pittsburgh.

Tennessee—George E. Sylvester, civil and mining engineer, Rockwood.

Canada—Thomas Graham, chief inspector of mines, Victoria, B. C.; James Bartlett, inspector of mines, Haileybury, Ont.

Extracts from a Superintendent's Diary

Arthur Blake, manager of stores for our company, spent the day in camp making his monthly inspection of our commissary. Incidentally he spent an hour or so at my office, and because of the fact that our conversation happened to drift into a discussion of the relation between commissary profits and house rents, I learned some facts that will be of great assistance to me the next time I find it necessary to go to my directors for an appropriation to cover camp improvements.

Blake has been connected with mine commissaries for a number of years—so many years in fact that he recalls without an effort mining villages where the houses were all shacks, and hogs and cattle had at least equal rights with the miner's children on the village green. Schools, fences, changehouses and other present-day necessities had not yet arrived. I too had witnessed similar changes, but had never stopped to consider that each change for the better meant a corresponding improvement in the commissary manager's profit sheet.

Since Blake's interest in the mining game is concerned only with the dollars and cents that it produces in his department, he has allowed nothing to escape his notice that might affect his yearly showing. His conversation developed many important facts that prove the necessity for a closer and more intimate relation and coöperation between departments of a great business.

He has found that schools create a demand for children's clothes, to say nothing of a larger variety of foods as well as toothbrushes and other toilet necessities. Better houses mean more and better furniture and more of everything else for that matter, because the families stop shifting around and that means that most of the earnings of the men folks are no longer required to meet moving expenses. To hear him tell it, the purchasing power of some families has been more than doubled, without any change in rates of compensation.

Incidentally he mentioned that the men no longer shift around as was formerly the case, and he has the same customers' names on his books year after year. One of the effects of this state of affairs is that it is no longer necessary to take long chances with new customers as old ones are in the majority.

Personally I am not very much interested in the profits of the commissaries or the buying power of my miners, but incidentally Blake's talk will be of immense assistance to me in the future. It is easy enough to make statements about the drawing power of satisfied labor, of well-equipped houses, schools, etc., but I have found it rather difficult to back up my statements by actual figures. These I will now be able to obtain by simply calling on the commissary managers for statements from their books.

It is not hard to understand that after a man's family has succeeded in getting enough money out of him to furnish a house comfortably, they will have many objections to offer if he suggests that work is better in another camp. To hear Blake tell it, the commissary books show that some of our miners' houses are well furnished to say the least.

If Blake happens around often enough, it is more than possible that I will become very much interested in the affairs of the commissary.

The Rocky Mountain Coal Mining Institute Meeting

By Floyd W. Parsons

SYNOPSIS—A purely conversational account of the summer meeting of this big Western coal institute. "Coal Age" fathered the institute at its inception and is proud of the growth to which the organization has attained. The author of the article recites in narrative fashion his journey out and back.

Summer manifests itself to different people in different ways. Some men are sure June is here because strawberries have been reduced to something less than a dollar a box. I know June is here because I am on the train with a yard-long ticket reading Salt Lake City. It's the summer meeting of the Rocky Mountain Coal Mining Institute I'm bound for. I know I'm too busy to go, but I'm going anyway—and why?

Well! I'm one of the daddies of the institute, and, second, I'm a life member. Being a life member of a society located 3,000 miles from home is a fine thing. I don't have to pay any annual dues, which means that if I continue to exist for 30 more years I will have saved about $70. During this time it will have cost me only $6,000 to get out to the conventions and back—but what's that to a life member? Besides, my vanity has been tickled, my loyalty insured and my conscience aroused to everlasting sentry service. I couldn't stay home if I wanted to.

It's a long journey, but there's something to anticipate at the far end. I'm going to meet men whose hearts remain warm and whose memories are not dimmed by time or distance. I was born in the South and educated in the East, but I've lived in the West and I recognize that the bigness of the country permeates the souls of the fellows living out there.

What kind of a man is he who forgets help rendered in time of need? Therefore *Coal Age* and its editors can't forget the friendly coöperation of the Rocky Mountain coal industry when the paper was a little fellow struggling to hold up its head. Now that it is in the prime of healthy young manhood and has become the only paper published for coal men engaged in operating mines, will it forget? No! Not now, nor later.

I stopped in Chicago a few hours and among other things had an interesting talk with Carl Scholz, who manages the mines and fuel interests of the Rock Island R.R. We discussed labor matters as viewed in the light of events subsequent to the recent McAlpin agreements. Mr. Scholz has some ideas, and I succeeded in getting his promise to write them down for publication in *Coal Age*. He is to give me the copy on my way back East.

I can't help but call attention here to some educational work Mr. Scholz is doing in the way of instructing Rock Island employees in fuel economy. In his company's magazine he says:

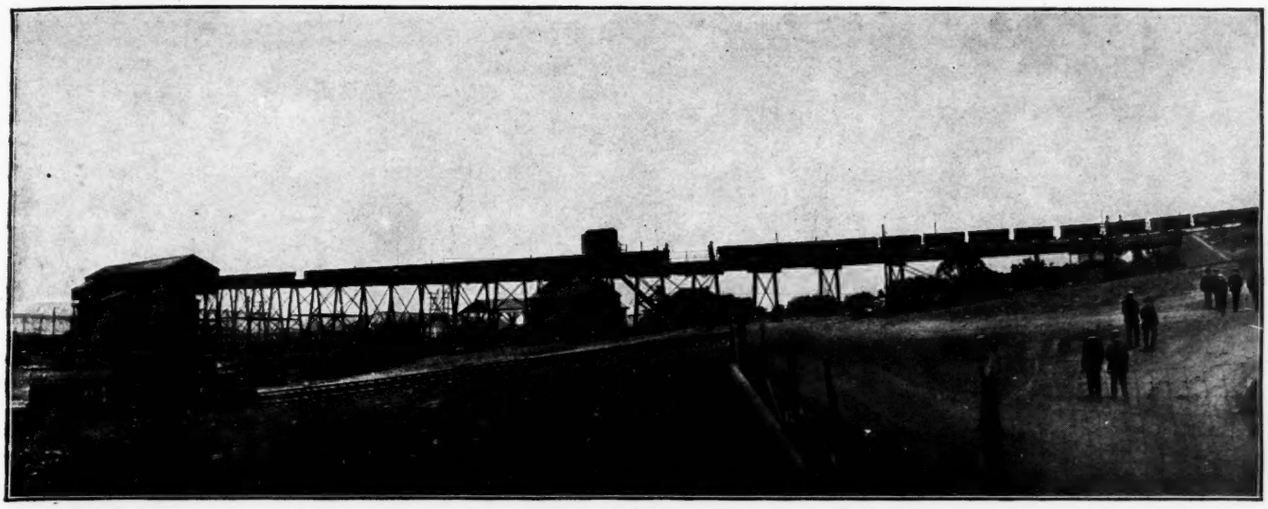
The theoretical amount of power contained in a scoop of coal holding 15 lb. of fuel at 13,000 heat units per pound is 195,000 heat units. Since each heat unit is equivalent to 772 ft.-lb., the scoop of coal will develop theoretically 150,000,000 ft.-lb.

In actual operation the losses in heat by the burning of coal, absorption of heat by the boiler, losses through the ash and through the stack, radiation, cylinder condensation and the losses in the machinery are approximately 95 per cent., leaving only 5 per cent. of the original theoretical power actually available for work; and still this 5 per cent. is sufficient to raise one of our large Mikado engines fully equipped for service, weighing 320,000 lb., 23½ ft.

This illustration conveys clearly how much power can be generated by the saving of one shovelful of coal. Let us see how much energy we can save each day.

In another issue of the Rock Island *Employees' Magazine* Mr. Scholz says:

MEMBERS OF THE ROCKY MOUNTAIN COAL MINING INSTIT
The photograph was taken in Salt Lake



STEEL TIPPLE AND FOOT OF INCLINE AT THE BLACK HAWK MINE OF THE UNITED STATES FUEL CO., BLACK HAWK, UTAH

A scoop of slack coal will convert 120 lb. of water into steam in any well-kept boiler. If the flues and flue sheets are covered with ⅛ in. of soot, which is not at all uncommon, it will only evaporate 66 lb. of water. It is very important that close attention be paid to the soot, which will accumulate quickly with the high-volatile, long-flame coals produced in the Central Western states.

The following table will be of interest to those who wish to help in a fuel economy campaign:

TABLE SHOWING THE LOSS IN CONDUCTIVITY OF BOILER PLATE DUE TO VARYING THICKNESS OF SOOT DEPOSIT

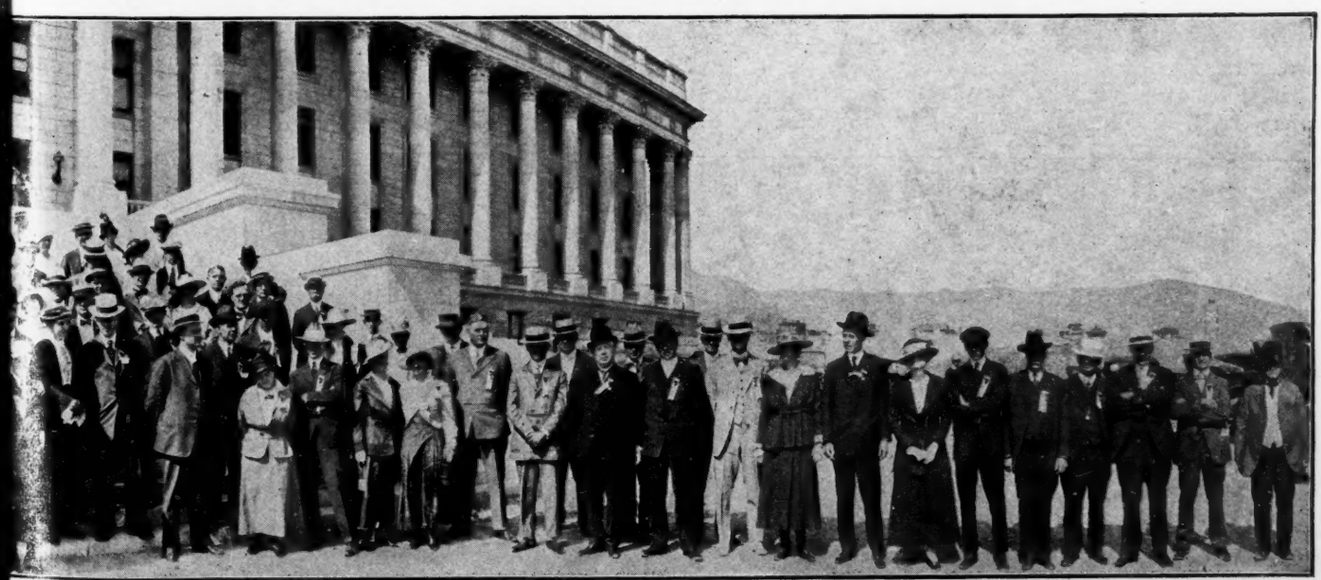
Thickness of Soot	Loss Per Cent.
Clean plate	0.0
1/32 in.	9.5
1/16 in.	26.2
1/8 in.	45.2
3/16 in.	69.0

Well, Hughes has just been nominated. I'm leaving Chicago on a train crowded with Republican delegates. Some of them seem to think I'm a brother patriot and have been telling me all about it. Each time I start to reply I remember the motto of the mines—"Safety First"—and shut up. Among a half-dozen men near me in the observation car were two congressmen and a governor. The one impression I have received is that politics is politics and human nature is human nature. We can educate our wills, put brakes on our tongues and polish our manners, but human nature is there 100 per cent. strong, whether we live in Oshkosh or New York City. Somehow I have no better opinion of politics than I had before I got on the train in Chicago.

Believe I got an idea, however—politicians are great fellows for ideas. One of the congressmen told how a certain candidate had beaten a friend of his at the polls. Mr. H—, the successful office-seeker, was of German descent. He sent out a letter attacking himself. The circular said that Mr. H— was of German nativity and, therefore, was not a desirable man for the place. The letter was mailed to the German voters in the district and resulted in a solid German vote for Mr. H—.

Couldn't I work it this way? Suppose I send out a letter to all mining men who are not *Coal Age* subscribers and say:

Dear Sir—Don't take "Coal Age." I started to read it three years ago and was then only a fireboss. After studying it one year, I passed a mine foreman's examination; at the end of



N ATTENDANCE AT THE MIDSUMMER MEETING OF THE ORGANIZATION
ith the State Capitol Building as a background

RAILWAY STATION AT CASTLE GATE AND BAND OF UTAH FUEL CO.

two years I had qualified for the position of superintendent; now I am manager of all our mines and the information I got out of "Coal Age" cost me $9. My salary has only been increased from $900 to $3,600; so don't let them fool you as they have me. "Coal Age" contains nothing about raising poultry or growing mushrooms; it only prints articles on mining coal, so if you are a coal man beware of spending $3 for such useless information.

Most of the politicians got off during the night, so this Sunday morning I have the train pretty much to myself. We're getting west, for I see two jack rabbits. Fifteen years ago when I first went across the plains one could see at least a few coyotes, but not now—civilization and population have advanced and the "Wild and woolly West" is no more. Soon we'll be in Denver and at 8:30 in the morning the pilgrimage to Salt Lake will commence. No body of coal-mining men in the United States turn out so well for their meetings as this Rocky Mountain crowd.

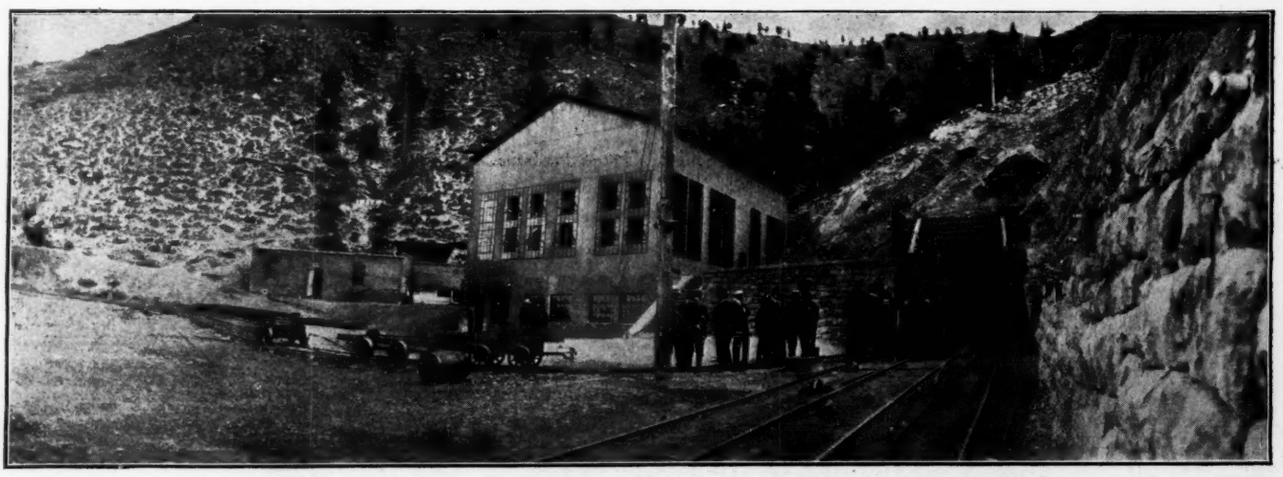
Well, here we are on a special train of Pullman sleepers with an observation car on the rear end. It's the same old crowd, minus a few regulars, with some new faces to take their places. W. J. Murray, of the Victor-American, isn't with us because Billy Murray, his son, is in the Denver hospital with a badly broken arm. Too bad Billy can't be present—he is one of the founders of the institute and up to now has never missed a meeting.

In Pueblo we picked up a lot of members, among whom is B. J. Matteson, assistant general manager of the C. F. & I. mines. Mr. Matteson is going in place of Mr. Weitzel, who can't get away.

Eight hours on the train has proved that we have a crowd of regular fellows. At dinner Bill Brennan, assistant general manager of the Union Pacific mines, Howard, of the Du Pont Powder, and Robinson, of the General Electric, matched me for the dinner check and I lost—knew when I drew berth No. 13 coming out of Chicago that I was going to be unlucky. Cargo, of the Westinghouse Co., was stuck for the breakfast. As a consequence Brennan and myself, also Abbott, of the American Steel and Wire, had a very good appetite.

Here we are at Castle Gate. All the Utah coal men have met us here. A fine band of the Utah Fuel Co. in red uniforms is playing a lively tune. The music has made George Anderson, of the A. S. & W. Co., and O. H. Davidson, of Denver, very patriotic—they want to start a preparedness parade.

We are now at Hiawatha, where a band of the United States Fuel Co. in blue uniforms is greeting us. Here is the Black Hawk mine of the above company. The tipple cost $150,000 and is an all-steel affair. The coal is unloaded one car at a time in a cylindrical dump. A Christy box-car loader is in operation. The coal dumping into open cars goes over a shaking boom that can be elevated to any height. This saves breakage. The coal comes from the faces in the mine to the tipple without unloading. Steel cars of 3½ tons' capacity



TOP OF INCLINE, POWER HOUSE AND DRIFT MOUTH AT THE BLACK HAWK MINE

EXCURSIONISTS AT BLACK HAWK, UTAH

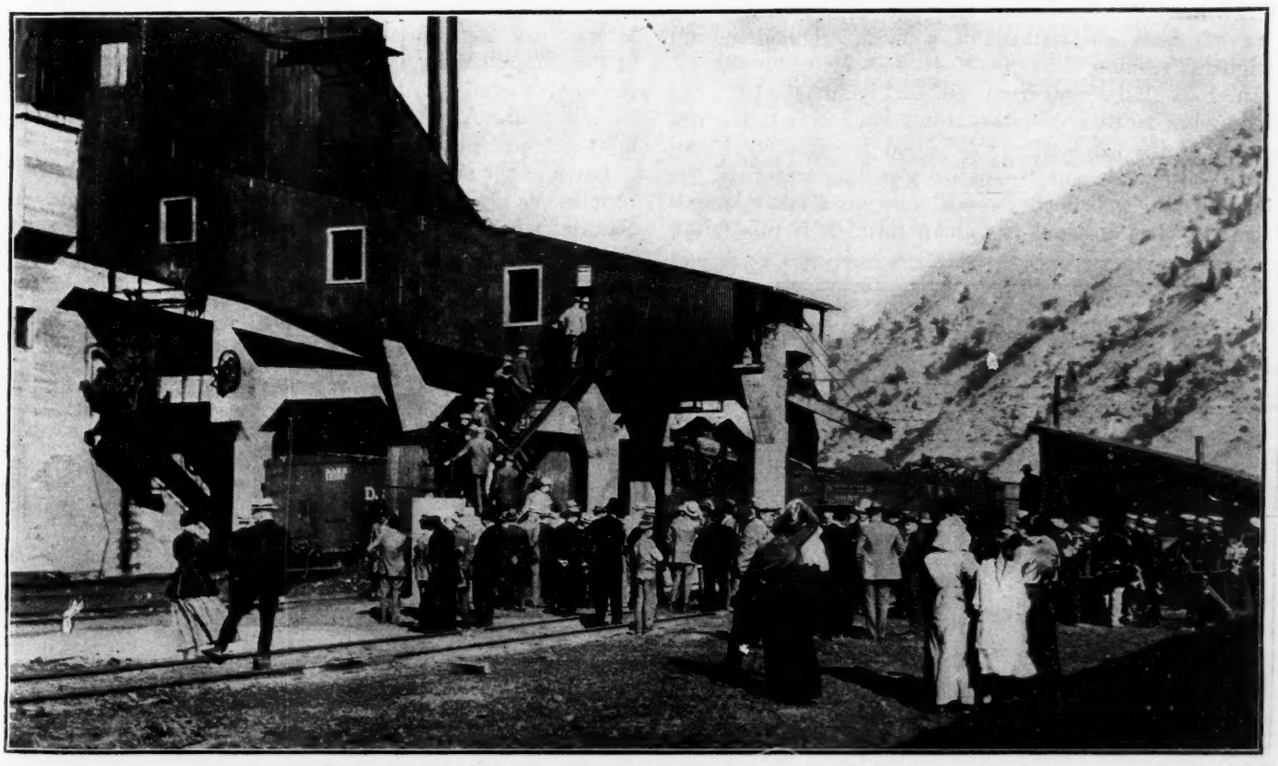
are used. The mouth of the mine is connected to the tipple by a long incline. An average day's loading is 1,800 tons.

The seam at this mine is nearly 20 ft. thick. George Pryde, of the Union Pacific, says this isn't a coal mine, it's a coal quarry. We went into the mine about ½ mi. The main haulway averages from 15 to 20 ft. high. It is whitewashed top and sides. The lunch we had here at Hiawatha was fine. Some class, for we had an orchestra to tease us while we ate. The red band and the blue band had a competition; it was decided that the contest was a draw.

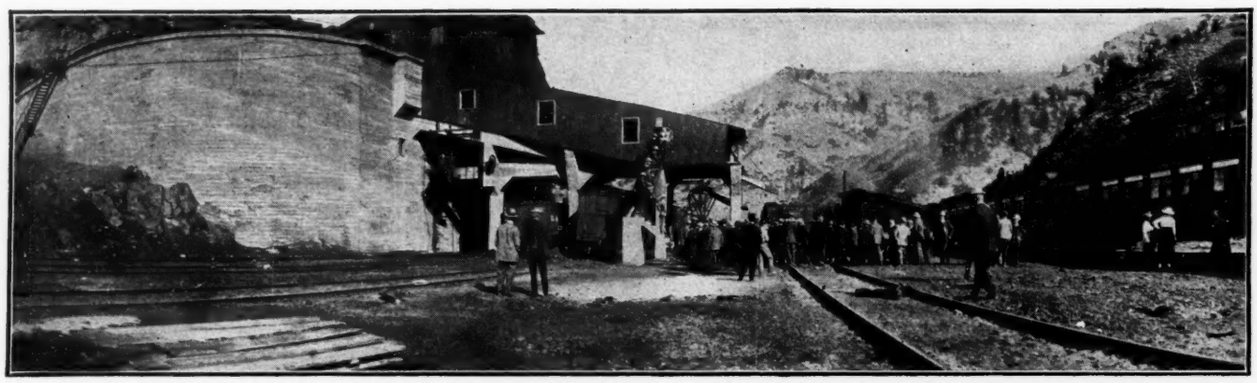
Now we are at the property of the Standard Coal Co. Here we have a concrete tipple and an Ottumwa box-car loader. There is also a very nice looking incline. But the chief feature is the circular track leading from the foot of the incline around over the tipple. This permits all the cars to run over the dump on the tipple by gravity. They unload and run by gravity to the empty siding at the foot of the incline. On their way over the tipple the cars are weighed automatically by an Amet-Streeter scales. This looks like an economical arrangement, as only two men are required on this tipple, and from 1,400 to 1,500 tons can be handled daily.

Our next stop was at the mine of the Spring Canyon Coal Co., where the coal is brought to the tipple by an aërial tramway. This installation is quite successful and shows what can be done by aërial trams. Only a little time was spent here, as we had to hurry on to Castle Gate for supper.

At Castle Gate the Utah Fuel Co. set up a delightful supper to all the members and then took the entire party in a special train of mine cars through one of their mines where a 24-ft. seam of coal is being worked. The coal is cut with a Jeffrey Arcwall machine. Two Goodman straight-face cutters are also on their way for use in this mine. The miners here average loading from 15 to 20 tons per day per man—an output that at 37½c. per ton gives them a daily wage of from $5.60 to $7.50. Miners in some of our Eastern mines would shed tears of joy if they could work under such conditions.



CONCRETE TIPPLE OF THE STANDARD COAL CO. AND AN OTTUMWA BOX-CAR LOADER



ANOTHER VIEW OF THE STANDARD COAL CO.'S TIPPLE, SHOWING PECULIAR CIRCULAR CONSTRUCTION

I would like to describe the method of mining here as I saw it, but will leave that for Mr. Watts, president of the institute and chief engineer of the Utah Fuel Co. Mr. Watts is preparing a series of articles for us, to be a part of the *Coal Age* series on underground mining.

In the evening after we came out of the mine at Castle Gate we washed up, put on our best society manners and went to a dance. I'm just going to tell you that the young ladies out in Utah know how to dance. Messrs. Abbott, Robinson and Burnite carried off the honors with their nimble footwork and clever blarney—at least, that's the verdict of Mr. Loveland, of the Mines and Smelters Supply Co., and Mr. Fields, of the Jeffrey Co., and they're some judges of society capers.

Mr. Thompson, general superintendent of the Utah Fuel Co., who acted as host when he wasn't busy shaking a foot himself, shooed us all out of the hall at 11:45, just in time to board our special for Salt Lake City, where we arrived the next morning at 7. Will we forget Castle Gate? I reckon not. Thank you, Mr. Thompson, Mr. Watts, Mr. Sanderson and Mr. Murphy. Seldom have we been entertained in a more wholesome and delightful fashion.

In Salt Lake we were all on hand at 10 a.m., Wednesday morning, in the Hotel Utah when the first session of the convention was called to order by President Watts. Parson Simpkins was the orator of the morning and welcomed the coal men to Utah. If Salt Lake City has an asset in human form, it is this fellow Simpkins. He's a clever story-teller and carries his hearers right with him. By the way, if the parson's remarks on preparedness are indicative of the feeling in the West, then we Easterners have under-estimated the interest of our Western brothers in the subject.

The parson, however, doesn't believe in getting too cocky, as was the case with a Scotch friend of his. This Scotchman, a little the worse for liquor, stepped into a bar-room, walked across the floor and after sizing up the crowd said, "I can lick any man in the room." Nobody replied, and after walking up and down a second time he said, "I can lick any man in the town." Again there was no reply, and the Scotchman strutted across the room a third time, after which he shouted, "I can lick any man in the county." A few minutes later, picking himself up off the sidewalk he remarked, "The big mistake I made was in taking in too —— much territory."

In the afternoon of Wednesday the entire crowd adjourned to Saltair, a lively resort on Great Salt Lake. The real sports went in floating, while Paul Garoutte and Westinghouse Cargo looked on from the side lines. It was just high tide when Urquhart and Monay got in the water. Many bathers were swept off their feet by the sudden swell. Bill Brennan was voted the best-shaped bather, while A. E. Lindrooth was conceded to be the most graceful floater.

Later in the evening Mr. Murphy conducted the crowd, numbering nearly 200, into the spacious dining-room at Saltair, where a first-class dinner was served. Aside

AËRIAL TRAMWAY AND TIPPLE OF THE SPRING CAÑON COAL CO.

DOUBLE TIPPLE OF THE UTAH FUEL CO., AT CASTLE GATE, UTAH

from the eating, the dinner resolved itself into an endurance contest between the orchestra and "Sandy" Sanderson. The latter won out, but was so exhausted at the finish that Burnite had to render first aid. Whenever the diners started singing, Abbott would make a funny noise that greatly worried several of the members. Some said he was singing, others maintained that he was whistling, while a large majority thought he was ill; however, Anderson, his protégé, who should know, said that as soon as the music stopped he would be all right again. Cargo was very orderly all during the meal in spite of the fact that Utah is "wet." How these fellows who live in "dry" Colorado keep in practice I really don't know.

After Bill Brennan, Fred Whiteside, President Watts and Bill Monay had finished drinking their dinner, all hands adjourned to the biggest dance floor I ever saw, and the merry whirl commenced. Many people can dance only fox trots to fox-trot music, but not so with this bunch. The music doesn't "cut any ice." When a member wanted to waltz, or walk, or run, he did so; if the musicians didn't want to keep time with him, they didn't have to. Independence is a great virtue.

Thursday was a busy day. There was an interesting and helpful "Address to Young Men," by John McNeil, and a good paper on "Explosives," by F. W. Whiteside. Both of these papers will be printed in a later issue of *Coal Age*. Governor Spry came over and talked to the members at noon, and in the afternoon the entire crowd went motoring over the Wasatch Boulevard, later visiting the capitol, where the annual picture was taken. At the capitol Chief Mine Inspector Pettit made the members welcome. The banquet, Thursday night, was a notable affair and was enlivened by the happy presence of Parson Simpkins and P. F. Sharp.

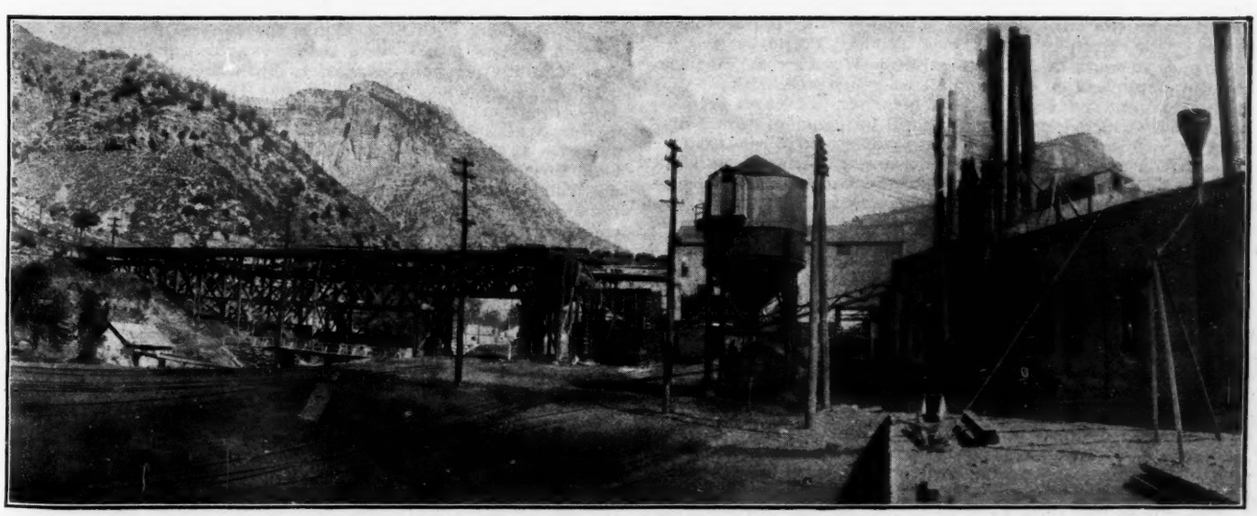
In closing this lengthy recital let us not forget that our Utah hosts did everything within reason to afford the feminine coterie of the invading party a delightful time, and I have reason to know that they set a standard of hospitality that will be hard to imitate and difficult to equal.

All in all, the meeting was a decided success, and here on the train headed East, I'm sorry it's over. However, there's more to come, and let's hope they will all end as happily.

Recent Legal Decisions

Responsibility Respecting Defective Tracks—A coal operator furnishing cars for transportation of employees to and from their places of work is liable for injury sustained by them in consequence of a defect negligently permitted to remain in the track. (Kentucky Court of Appeals, Miller vs. Taylor Coal Co., 182 Southwestern Reporter, 920.)

Assumption of Risk of Mule's Kicking—In denying the right of a mine driver to recover for injuries sustained when he was kicked by a mule which he was driving, on striking the animal with a whip, the Kentucky Court of Appeals said in the case of Pratt vs. Consolidated Coal Co.: "The mule would have been untrue to itself and to every tradition of its breed if it had kept its heels on the ground, and an employee cannot court danger by inviting a mule to kick him and then recover for consequent injuries."



ANOTHER VIEW OF THE TIPPLE SHOWN AT TOP OF PAGE. POWER HOUSE ON RIGHT

The Labor Situation

General Labor Review

The bituminous regions of Pennsylvania, with those of Kentucky, are the only considerable coal-mining sections still troubled by strikes. Even in these parts there is at least a temporary tendency toward a reduction in the areas affected, though at any time the work of conciliation may be cast to the winds by unreasonableness on the part of either of the contracting parties.

In the anthracite region there has been a gradual easing in conditions, the reason for which is somewhat hard to discover. Probably both sides have compromised somewhat—the miners accepting the necessity of staying at their work for eight hours if during the whole of that period work remains to be done, and the companies giving them a chance to leave the mine whenever their services are no longer in demand. In any event some sort of unwritten compromise appears to have been effected following probably the lines of the Philadelphia & Reading Coal and Iron Co.'s understanding.

The firemen of the Lehigh Coal and Navigation Co. went on strike on June 30 to obtain higher pay at three operations—Coaldale, Lansford and Greenwood. The other collieries worked because the company was able to obtain volunteer firemen. However, 4,500 men were made idle. The strike is in violation of the agreement. The president of the district, No. 7, Thomas Kennedy, does not uphold the strikers and openly declares that the men are now getting all their contract would award them.

Strike in District 5, Western Pennsylvania

It must not be forgotten than in the Allegheny Valley region, including the Kiskiminetas Valley, which enters the Allegheny River from the east, a strike has been continuing for about 15 weeks. There are some 3,500 men still idle. It will be remembered that early in the strike the Ford Collieries Co. for its mines in Curtisville, the Superior Coal Co. for its mines in Superior, the Allegheny Coal Co. for its mine at Harwick and the Bessemer Coal and Coke Co. for its mines at Bessemer signed contracts with the union.

The other companies held out. On June 12 the Valley Camp Coal Co. signed a contract. It provides that the mines shall be operated on the mine-run basis, that the working day shall be of 8-hr. duration at the working place, with the same conditions relative to starting and quitting as prevail in the Pittsburgh district, that no discrimination shall be shown against union men, that men may present and adjust grievances with the company officials through their own mine committee, but where this committee acts for the men it must do so after working hours, that a check weighman may be elected from among the employees and that his wages and those of the mine committee will be collected by the company through the office, that the company will make such deductions from the pay of the men as shall be authorized by the proper officials of the United Mine Workers of America, that the employees on strike shall be reinstated without discrimination and as soon as possible, that all cases of discharge and suspension in future shall be considered and disposed of within five days and that if any man discharged or suspended is found to have been dealt with unjustly he shall be compensated at a rate based on the earnings of the employee prior to the discharge or suspension. It is also provided that the pick-sharpening agreement shall be the same as in the Pittsburgh district.

Wage Scale Signed by Valley Camp Coal Co.

The mine-run contract scale is as follows: Machine cutting per short ton, 6.6c.; per yard in narrow work, 21.4c.; machine loading per short ton, 33.7c.; per yard in narrow work, 41.2c.; pick mining and loading per short ton, 52c. The day-wage scale is based on an 8-hr. day and is as follows: Blacksmiths, $3.42 per day; blacksmiths' helpers, $2.52; trimmers, bony pickers and car movers, $2.10; and carpenters, $2.88; roadmen, motormen, trip riders, snappers, timbermen, wiremen, shot firers, $3; roadman's, timberman's and wireman's helpers, $2.80; trappers, $1.70; all other inside day labor, $2.80.

The miners for their part make concessions, agreeing that the protective clauses relating to the preparation of coal, which are embodied in the Pittsburgh scale, shall apply to the Valley Camp Coal Co. and that the preparing of coal and placing of shots be subject to the mine foreman's orders.

The miners agree that in case they close down the mine in violation of the contract every employee who fails to remain at work shall be fined $1 for every day the mine or part of the mine is closed down. If the company locks out the men in violation of the joint agreement, it shall be fined $1 per man for every day the men are locked out, the miners' fines going to the operators and the fines assessed against the company being paid to the union.

The operator retains unabridged the right to hire or discharge his men, and the direction of the working forces inside the mine is left to the mine foreman. Any employee who absents himself for two days or more without giving advance notice, when possible, to the mine foreman or superintendent forfeits his position.

The requirement is more severe as to machine runners or any employee upon whose work other employees are dependent. In that case a man may be discharged for once absenting himself from work for a single day, provided he has not given advance notice, where possible. It seems difficult to assure oneself that the loader on whose work the work of the machine runner depends is not subject to this rule. The looseness with which this clause is drawn is likely to make trouble later.

Conditions at Those Mines That Will Not Sign

The contract is given practically in full, because it is probably typical of the agreements which the union will sign and has signed along the Kiskiminetas and Allegheny Rivers. The mine employs only 500 men, but its defection from the others in signing a contract is thought to foreshadow a general recognition of the union in the Allegheny Valley sections, which have hitherto kept the union at arm's length. The mines north of Kiskiminetas are all or nearly all union mines.

It is stated that only the McFetridge Brothers Coal Co., at Creighton, has attempted to introduce strike-breakers. The attempt has not been very successful, as labor is hard to obtain and a number of deputy sheriffs have had to be employed. The union miners claim there are 30 deputies and at no time have more than six miners gone to work. The cost they figure is utterly prohibitive and cannot be long continued.

The union mines in the Pittsburgh district are at work, though not at full force, for men are scarce. There is as yet no settlement of the vexed question between miners and operators, and a strike may result at any time, but it is not likely to receive the recognition of the union.

Rochester and Pittsburgh Mines in Contract

The miners working for the Buffalo, Rochester & Pittsburgh Railway Co. interests at Ernest, Lucerne, Fulton Run and Cumming's shaft, Indiana County, Pennsylvania have made a contract with B. M. Clark, the general manager of the company. The mines were only organized in April of this year, and the company desired to keep them nonunion.

The miners where the union was recognized by the company threatened to strike, and it was their action, improper as it was, which caused the general manager to recognize the union in the newer mines. The company will sign the contract for the mines before mentioned, will recognize the union, will reinstate the strikers in their old jobs, will open up their towns to the public and will remove all mine guards. The company will open up the un-unionized villages also and will recognize the union at those places, as soon as the officials and organizers of the union can enroll a majority of the employees. Iselin, Whiskey Run, McIntyre, Tide, Waterman, Snyder and Altman, with about 2,000 men, are such villages, and the union expects to organize the men at these places without delay.

Only a single trifling difference divided the operators and miners at the joint conference held last week for the settlement of the mining scale and working conditions in the Coshocton field of Ohio. An agreement has been reached on all other points, and no great trouble in adjusting the disputed point is anticipated. When the Coshocton field has signed its agreement, every mining district in the state will have adjusted its wage scale and working conditions for two more years.

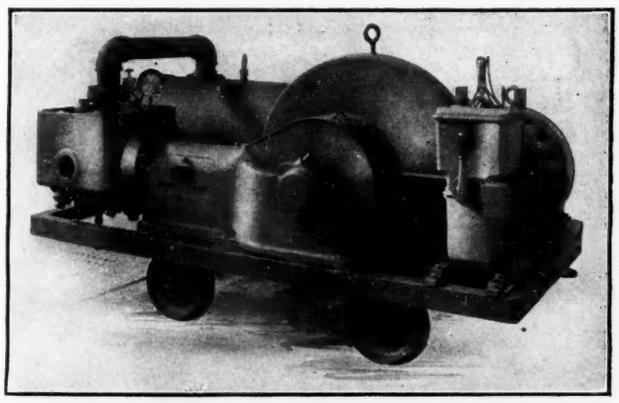
New Apparatus and Equipment

A Portable Electric-Driven Air Compressor

As compared to electrically driven coal-cutting machinery, pneumatic equipment is cheaper in first cost, and is also possibly safer. Danger to the miner from accidental contact in dark, cramped quarters with live feeder wires is removed, and the explosion hazard is undoubtedly lessened since ventilation is always poor in front of a newly opened face, and the presence of gas pockets in the coal may create a combustible mixture that the air exhaust will materially help to dispel.

In order to present a means of securing the fullest benefits of compressed-air machinery in electrically equipped mines, while utilizing all the advantages of the electric system of distribution, the Chicago Pneumatic Tool Co. has developed a portable, self-contained, electric-driven air compressor, known as the Class N-SE Mine Car.

With regards to economy the unit compares favorably with the central compressor plant on the surface. Its initial efficiency is of course not so high, because of its



SELF-CONTAINED UNIT ON A MINE TRUCK

smaller capacity, but this difference is, in an appreciable degree, equalized by the losses resulting from leakage and drop of pressure in the line with the large plant, and the fact that the portable compressor may be located close to the work so that the temperature of the air delivered to the drills, etc., is considerably increased. Feeder pipes are eliminated, thus effecting, if these lines are of any length, a saving in capital investment.

The portable unit may be moved from place to place without loss of time, or the necessity for extending or modifying existing pipe lines. For mines whose air requirements are not large it offers a desirable installation. For others, the air requirements of which vary considerably from day to day, or week to week, it presents an opportunity to reduce the increased cost per unit volume of air resulting from operating a large plant at partial load. This last saving is important in new development work, where it may take a year or two to reach an air consumption as large as the capacity of the central plant.

The compactness of the N-SE mine car compressor is evident from the illustration. The unit consists of a horizontal, straight-line, single-cylinder air compressor, driven by means of a motor through the medium of herring-bone gears. An air receiver of proper size and a rheostat are provided. The entire apparatus is mounted upon a strong, but light, steel car frame.

The air cylinder is equipped with the manufacturer's patented "Simplate" inlet and discharge valves, which require no actuating mechanism, no lubrication, and which operate efficiently at high speeds. It is hopper cooled and needs no attention beyond filling the open water box once a day. An automatic regulator unloads the compressor when the air delivered exceeds the demand.

Necessary flywheel effect is secured through the rotation of the heavy gear. Both gear and crankshaft are properly counterbalanced, hence the compressor runs smoothly. The positive splash system of lubrication which assures a constant and copious supply of lubricant to all wearing parts is employed. The gears turn in a bath of oil.

The rheostat is either of the hand-starting or automatic type, depending upon conditions. On account of the wide range of voltage found in many mines the automatic control is particularly desirable, since it has a tendency to keep the motor running under low-voltage conditions, and should the current be interrupted the motor will start gradually without attention when it is resumed. With this type of starter a regulating device is connected to the unloader, so that when the load is thrown off the compressor the motor is brought to a stop and continues inactive until air is again demanded.

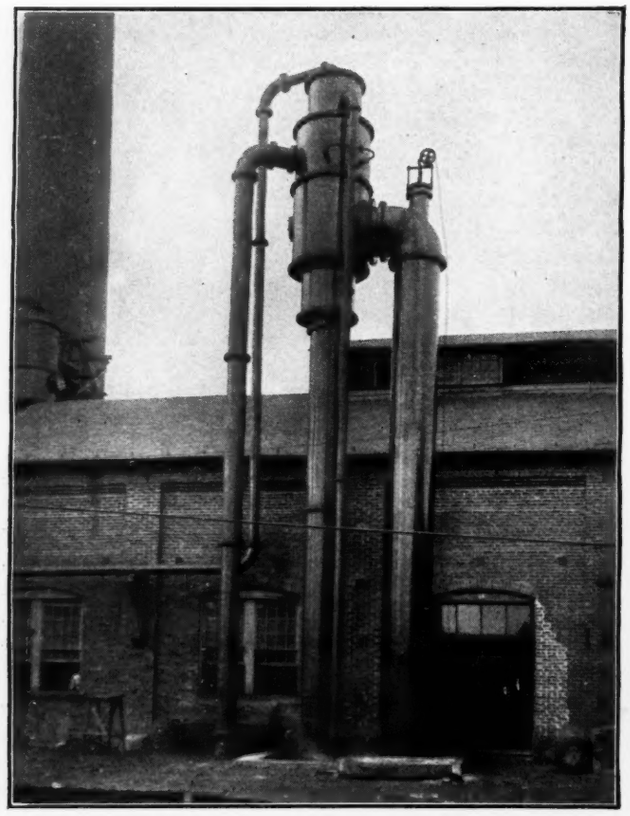
Every part of this compressor unit is completely inclosed. Exposure to dampness will not injure it. Delicate or complicated features of construction have been avoided, and the machine is well suited to rough, heavy duty. It is so entirely automatic in action that it requires no attendant, the miner soon learning to handle it properly. The comparative lightness of the car permits of its removal from the rails when demanded by the conditions of operation.

These compressors are offered by the manufacturer in six sizes, ranging in capacity from 51 to 314 cu.ft. of free air per minute at pressures of 80 to 100 lb. It will thus be seen that the larger sizes will take care of three coal punchers, one channeler, or 6 to 8 "Hummer" drills.

Beyer Barometric Condenser

The Ingersoll-Rand Co., No. 11 Broadway, New York, is now offering to the trade complete steam-condensing plants for all service conditions. This equipment includes the Beyer barometric condenser, for which the company has secured the patent rights, Imperial duplex and Ingersoll-Rogler straight-line reciprocating dry-vacuum pumps and, where required, Cameron simplex and centrifugal pumps.

The Beyer barometric condenser is of the counter-current type, in which air and cooling water flow in opposite directions. The steam inlet is at the bottom of the condensing vessel, the water inlet above and the air removal opening at the top. The sheets of cooling water overflowing the pool at the inlet point meet the entering steam. The two are brought into intimate contact by conical baffle plates, assisting the water to absorb to its full capacity the latent heat of the steam. The non-condensable air rises through the falling water to the removal point at the top, being cooled to practically the temperature of the incoming water. Ample opportunity is given for the removal of the air content of the water



THE CONDENSER IN OPERATION

before it mixes with the steam. This, the manufacturer points out, not only facilitates the mixing process, but permits the removal of air and vapor at a comparatively low temperature. The reduced volume saves in vacuum pumpage horsepower.

The steam inlet is of large diameter to secure low velocity and is hooded in such a way as to discharge the steam into the center of the condensing vessel. The air-removal opening is also of ample area and is protected by a self-draining baffle and trap thus effecting so far as possible the elimination of water.

The hot waste water is discharged through the self-draining tail pipe. This pipe straddles the hotwell and rigidly supports the condenser.

The Imperial and Ingersoll-Rogler vacuum pumps are of the manufacturer's standard type. They are high-speed reciprocating machines, wholly inclosed, automatically lubricated and are said to effect a floor-space saving approximating 50 per cent. over the more common slower-speed vacuum pumps.

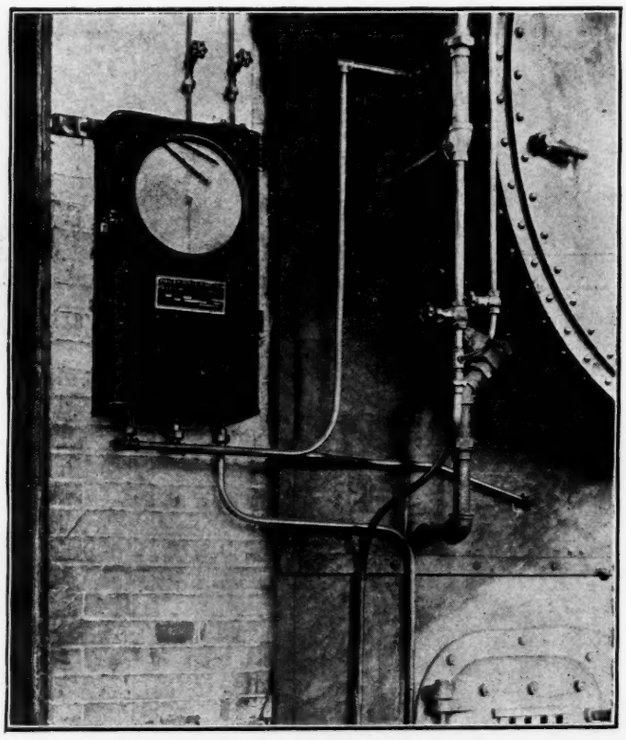
When a water pump is required to elevate cooling water to the condenser head, Cameron pumps are provided. These may be either reciprocating or centrifugal as desired. Where the level of the coldwell, however, is of sufficient height above the hotwell, the condenser will lift its own cooling water, dispensing entirely with a water pump.

The manufacturer, in presenting this equipment, brings out the point that the vacuum and water pumps, being independently operated, can be regulated to suit varying water temperatures and conditions, and that this plant, in addition to its efficiency in general service, is admirably adapted for duty as a central condensing unit serving a number of prime movers.

Recording Pipe-Flow Meter

A new recording meter for flow of steam, water, gases and air through pipes has been announced by the Bailey Meter Co., 141 Milk St., Boston. The outfit comprises an orifice plate in the pipe line, with upstream and downstream pipe lines running to a recording differential-pressure gage.

The orifice is the segment of a circle, and the orifice plate is made of $\frac{1}{32}$-in. monel metal, corrugated near its outer edge so as to need no gasket at the pipe connections. The greater pressure is led to the inside of a bell floating in mercury and the lower pressure to a sealed housing chamber. The float walls increase in



BAILEY RECORDING FLOW METER ATTACHED TO BOILER FOR STEAM MEASUREMENT

thickness from top to bottom, giving a variable exposed interior cross-sectional area so that the rise and fall are directly proportional to change in pipe flow. This permits a chart with uniform graduations.

An integrator is provided, and there are numerous details of refinement at different points of the meter to eliminate effects of vibration, prevent loss of mercury, etc.

Editorials

A Treat for Coal Men

Several months ago *Coal Age* announced plans for publishing a series of articles written by prominent engineers and covering problems of underground mining. As was to be expected in carrying out such an idea, many little difficulties arose that have caused minor delays in getting the work in hand. However, everything is now ready, and the first of the series will appear next week. The initial article is by H. M. Warren, chief electrical engineer of the Delaware, Lackawanna & Western R.R. He covers the subject of electricity, its application and use underground.

These articles have been written by the men who are actually doing the things they tell about; therefore, the series will be the last word in modern coal-mine engineering. The most recent textbooks will be out of date in comparison. We want each and every reader of *Coal Age* to arrange to set aside plenty of time to read and study these articles. We guarantee that the time so spent will be a profitable investment.

Coal Men of the Northwest

A number of coal-mining men in Washington, Vancouver and British Columbia are desirous of organizing themselves into a "Coal Mining Institute of the Northwest." The idea is not new, for there has been talk of the same thing several times before. Lately, however, the question has been brought up again through inquiries addressed to the officers of the Rocky Mountain Coal Mining Institute, asking whether that body would entertain a proposition to include the coal men of the Northwest in the membership of the Rocky Mountain organization.

There should be an institute covering the coal fields in the United States and Canada lying adjacent to the Pacific Ocean. This territory should be better organized, so that the men who are doing things out there can have the opportunity to meet one another and exchange ideas. We do not see how it would be possible, and certainly it would not be advantageous, to include the Northwestern fields in the territory covered by the Rocky Mountain Institute. The latter organization would be weakened rather than strenghened by such a consolidation. The men in New Mexico, Wyoming and Colorado now travel a thousand miles to attend institute meetings in Utah, and the people from the fields of this last state travel just as far when the conferences are held in Colorado.

There are a dozen good reasons besides the matter of distance that oppose the thought of including the Pacific Coast in the domain of the Rocky Mountain organization. At any rate time and conditions are not ripe for such action just now. That's the way we see it. Perhaps some of the coal men in the Rocky Mountain and Pacific Coast country may view it differently, and if they do, we want to hear from them.

Coal Age was instrumental in bringing about the formation of the Rocky Mountain Coal Mining Institute. The society started with a few more than 100 members and now has half a thousand. The same success can be attained in the Washington-British Columbia region. We want everyone of our readers in these last-mentioned fields to communicate with us at once. Give your ideas and state whether you will be willing to lend your time and influence to the carrying out of such a movement. Don't wait until tomorrow. What's worth doing is worth doing today—now!

Scranton Mine-Cave Situation

No fair and thoughtful man can do otherwise than sympathize with a company which has bought and paid for a piece of coal land and has been given the right to extract every part of it regardless of the damage done to the property and then finds that people have disregarded just what its rights imply and have settled on the land, paid generously for the equivocal right of surface ownership and have erected valuable buildings, trusting their savings, their lifework and even their lives to the uncertain foundations. Nevertheless, no matter how much we may sympathize, it is necessary to face the facts as they are.

The question regarding the mine caves in Scranton and the anthracite region is no longer one of the future. The dangers and losses are imminent, and we cannot wonder that the people who, perhaps imprudently but nevertheless certainly, have staked their all on a losing venture are excited and wrathful. Like all people who are desperate, who have taken a wrong step, they are impatient of the law; and so is the public, for it sees only the danger and damage and not the causes leading up to it.

If people had been prudent, they would never have bought property and improved it when the title they could obtain was so seriously compromised by the tenor of the deed; and if they do not like the conditions, they can still move away at considerable loss, of course, to themselves.

But the past is so nearly irremedial that it is not likely that the people in any large numbers will be compelled to face removal. Somehow a way out will be discovered, and it is more than probable that it will be entirely at the cost of the operator.

He may indeed be compelled not only to meet the full cost of the provisions demanded, but to that score may be added quite possibly the dislike and condemnation of the community, which is really every bit as heavy a charge to bear. It is a small matter to be legally right in one's contention. The larger need will always in a sentimental world overpower the lesser, and it is well that the coal companies should recognize this fact.

It does seem remarkable that so far they have done nothing and have to be reminded that public sentiment is a fearsome thing to face and that it is an old and well-recognized axiom that a man may not do just as

he will with his own, no matter with what technical clarity his liberty of action may be written in the bond.

Courts of equity do not openly recognize this axiom or such limitations to the use of property as its recognition would involve, but somehow it is a fact that there is a nemesis—a fate which follows those who exercise to its ultimate conclusion their right to property.

There are many ways in which, given sufficient stimulus from actual conditions, the courts might be induced to order that the excavation of more coal under a city than is safe is not only dangerous, but wrong.

This stand might be justified by holding the waivers of damages void, on the ground that the possession of any property that cannot be enjoyed is the tenure of a shadow rather than the ownership of a substance and that the creation of such properties lends aid to those who would sell an incorporeal or uncertain possession and so impose on the public. This is no imaginary matter. The sale of such substanceless rights has been quite general in the anthracite region and the cause of a large part of the present trouble; the only other cause is the development and improvement of the incorporeal or uncertain tenancy thus secured.

We dare not make a false weight that looks like a true one; we may not make a short yardstick; so it should not be allowable to create a possession which looks like something tangible, but which falls to pieces in practice like a broken bubble.

Or again, the courts may order in accord with good common law that a property cannot be allowed to be subject indefinitely to a claim that will destroy its value. In the case of William Barton *et al.* vs. the Thaw trust it was decided in the State of Pennsylvania that an option to purchase which was unlimited as to time was against public interest and void. As said editorially at that time, the decision might be developed without straining its meaning to cover the right to destroy and spoil the surface. If the privilege of purchase and use is forbidden, surely the right to abuse without purchase should be denied.

Furthermore, the courts may rule that the waiver of right to surface support will not be a defense, should someone be killed by an accident. The question of value received may also be raised, it being urged that no compensation is provided in the agreement for the part damaged, as is necessary when a part is to be taken and used.

The modern judge in equity, like his early prototype the chancellor, can find any number of honorable reasons for action when the need of the public is strong and the logic of the situation demands a solution. The "light of reason" is there to guide him. Even the present incumbent of the Presidency has praised a disposition to meet the needs of the time rather by the bare logic of the situation than by the accepted precedents of the past.

With this argument of the President we cannot agree; yet as a matter of positive fact reasons are always found and always will be found for doing what the people absolutely must have done, and it would seem that the requirement could be met without actual violation of the dicta of past courts of equity.

What will then happen? The companies will have to comply and in doing so will have to rectify their former bad practice in mining as well as do better in the future. The cost will be prodigious, and it will be taken only after the anthracite region has been made sore.

The people in that section have in the past spoken without showing much care for the proper interest of the mining companies. If they are made sore with unreasonable conduct regarding mine caves, the result will be more prejudice added to that already existing against the anthracite corporations—prejudice that will not be removed for decades or perhaps generations.

It would be far better to act now and make some sort of satisfactory compromise. It must be an arrangement that will safeguard the householder in his life and property. Nothing less will do, even if he stands ready to accept it, for the arrangement should remove all possibilities of future discord or the anthracite coal corporations, whether they individually offend or not, will all suffer the consequences of the continued irritation.

The Hard-Coalers Arbitrarily Change the Sizes

There are still quite a few in the coal trade who are inclined to doubt that any change in the anthracite sizes has been made, as exclusively announced in *Coal Age* recently. However, we know positively from a most reliable source that shipments of the new sizes have been made and will continue in increasing volume until, within a few months at the most, every mining company will have adopted the new standard.

When the first shipments arrived, the dealers who received them thought there was a mistake in preparation, but when the attention of the shippers was called to the coal, they informed the dealers that it was as good as could be expected in the future. The fact that this is the dull season of the year, with few shipments being made, seems to be the reason why the news did not spread more rapidly in the trade.

Now that shipments are actually being made and more shippers are adopting the new standard, it will be interesting to note the attitude of the general retail trade, and especially those large companies who stated they would absolutely refuse any shipments not up to the old standard. While the mining companies are undoubtedly entitled to ship coal in whatever sizes they choose it would seem to be a simple business courtesy for them to assume the burden of acquainting the coal-consuming public of their intention of making a change rather than to force this upon the retailer. The dealer will naturally have a load of unmerited criticism dumped upon his shoulders and this at a time when he is still subject to suspicion by the public on account of increased prices.

The Bureau of Census estimates that anthracite furnishes 7.74 per cent. of the heat units used in manufacturing; oil, including gasoline, 3.44 per cent.; wood, 1.45 per cent.; and gas, 0.1 per cent. So oil does have an appreciable influence on prices generally and quite a large influence over some areas. But owing to its present high price the competition of oil is not likely to affect wage settlements even in the Southwest. It is fortunate that at this wage settlement its effect on the coal trade may be entirely discounted by the conferees.

Department of Human Interest

Surgery, No Part of First Aid

The Department of Labor of Pennsylvania has issued a bulletin concerning the vital importance of first aid in mining and industrial accidents and calling attention to the fact that in providing for it the Medical Practice Act of June 3, 1911, must not be overlooked. It declares that certain industrial and mining concerns of Pennsylvania have been violating that act by employing unlicensed persons to give medical and surgical attention to their injured employees.

There can be no doubt, says the Commissioner of Labor, as to the value of prompt first aid in all accidents. The bulletin reads:

It is a fact that if first aid be intelligently as well as promptly administered, the danger of septic infection in every accident is reduced to a minimum. When septic infection supervenes in any accident case, it results in a serious loss to the injured man, to the plant that employs him and to the commonwealth at large.

The injured man, not receiving any compensation during the first two weeks of his disability, loses the wages that he otherwise would have earned. The employer loses skilled service, and in consequence the output of the plant may be decreased both in quantity and quality. The commonwealth suffers because one of its citizens, instead of being engaged in productive labor, is possibly a patient in a state hospital at the expense of the commonwealth.

In view of the vital importance of first aid, it is only proper that the state should throw a protecting cloak of law around its practice and so assure that this first aid is being administered to the best interest of everyone concerned.

The following facts communicated to the Department of Labor and Industry by Dr. John M. Baldy, president of the Bureau of Medical Education and Licensure, who called the attention of the department to the violation of the act of 1911, are included in the bulletin:

The head of the medical department of any industrial or commercial plant must be a licensed physician of this state. It is not permissible for either an unlicensed assistant or a nurse in any way to alter the treatment until the order to do so has been given by the licensed head of the department. It is legal in Pennsylvania for anyone, licensed or unlicensed, to apply first aid to an injured person; but it follows as a prerequisite that the licensed head of the department must see this patient at his next visit and direct the future treatment.

It is not permissible for an unlicensed assistant or a nurse to perform any type of surgical operation. First aid is to be construed as meaning the rendering of only such services as will contribute to the safety and comfort of the injured, until he or she has the opportunity of consulting a licensed physician.

The attention of employers is called to the fact that violators of this act are subject to severe penalties. In concluding the commissioner says:

The department desires to call the attention of every employer of labor within the state to these most important facts. The practice of some concerns in having first-aid men treat a case from beginning to end without the injured person being seen by a licensed physician is not only a violation of the law, but in some instances has resulted in serious harm to the injured man.

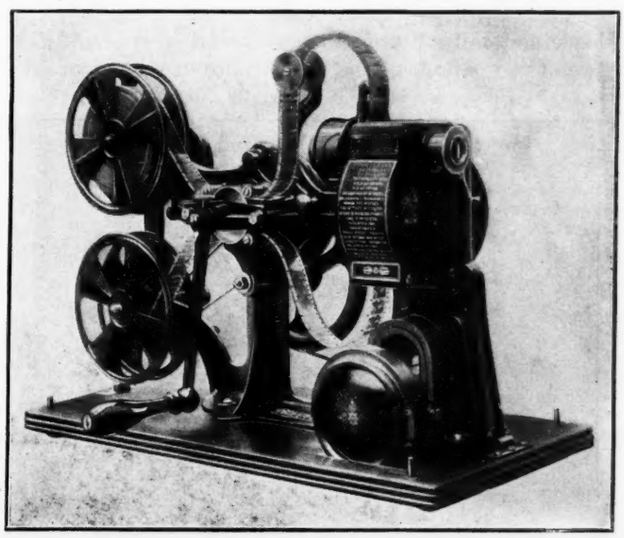
First-aid boxes should be used simply to furnish facilities for prompt treatment immediately after the injury occurs, but all subsequent dressings or changes in treatment should be done under the actual supervision of a licensed medical practitioner. All employers of labor should carefully note that the law requires that this should be done and that the Bureau of Medical Education and Licensure emphasizes that if this is not done severe penalties may follow.

The long-suffering layman supposes that most of the foregoing is as it ought to be, but he cannot help wondering why the War Department is always under a civilian. The poor engineer is in a similar quandary, trying in vain to discover why schemes for supplying water or rapid transit to a city or even for placing a grade on a village street are invariably controlled by an untrained politician or a lawyer.

The statement that "all subsequent dressings or changes in treatment should be done under the actual supervision of a licensed medical practitioner" is also worthy of comment. According to this dictum, if the bandaging has been wrongly placed, or if some part of the splinting gets loose, or the victim faints, or the tourniquet has been in operation too long, or its use proves necessary though before it was not needed, the poor fellow must be left *in statu quo ante* for fear of offense. The commissioner needs to revise his sweeping demands somewhat and show a zeal according to knowledge.

Motion Films at Mine Camps

The motion-picture film is destined yet to make a wonderful change in coal mines in the next few years. It has a large educative value, and it will probably do more to train miners in safety work, first aid, sanitation and thrift than any other agency. It can also be used in



HAND-OPERATED PROJECTOR, SHOWING TRAVEL OF FILM FROM ORIGINAL TO REWIND REEL

the common schools. It will serve further to inculcate patriotism and to promote other much-needed qualities.

It will help to train men in the right method of setting timbers, priming dynamite, stemming shots, laying track, splicing rope, placing shots, building roads and caring for machinery. It will teach the women the right way to perform their household duties, care for the sick and make best use of the garden. It will instruct the community of the dangers of disease and the means to combat it. It will aid in starting clean-up campaigns

and in teaching the avoidance of fire risk around the plant, the mine and in the woods environing both.

A Pathéscopic camera costs, with two magazines, $150. Tripods cost from $10 to $50. Negative films are sold and will be developed for 6c. per ft. by the company which vends them. The printing of a positive film from a negative will cost 7½c. per ft. Hand Pathéscopes are sold for $150; equipped with a dry battery they cost $175, and provided with a motor drive the price is $200. These figures include the screen.

The rent of a Pathéscopic reel for one night only is 35c., for three reels $1, for five reels $1.50. Reduced rates are placed on the use of the reels for long periods of time. Three reels will be supplied per week for a rental of $75 per annum and five reels for $100. If the service is only half as frequent, the rate will be $50 and $75.

But to get these rates the renter must be the owner of three or five reels respectively, and these will cost him $80 and $125. The reels are noninflammable. Of course the reels that are in stock will probably be, and now are, mostly of general interest and appeal. A list of 463 of these has been published. Those who have need of a motion-picture theater in their community or hope to illustrate safety lessons or first-aid methods by means of the film can learn more about these matters from the Pathéscope Company of America, Inc., Aeolian Hall, New York City.

Scholars at Glen White, W. Va.

The illustration shows the school children of Glen White, W. Va., both colored and white, who assembled to hear E. T. Stotesbury, the well-known Philadephia bank and railway president, make an address. All but two of the parents of the white children were born under foreign flags. They represented all parts of the continent of Europe. Mr. Stotesbury was so well pleased with the success manifested in the training of these little children of foreign extraction that he promised to return later in the year and bring his wife with him. Both Mr. Stotesbury and his wife are much interested in work of this character.

Workmen's Compensation Laws of 1914 and 1915

If proof were needed of the rapid growth of the idea of compensation of workmen for injuries received in the course of employment, as a substitute for the old liability acts, it would be found in Bulletin No. 185 of the Bureau of Labor Statistics of the United States Department of Labor. The bulletin presents the legislation for the years 1914 and 1915, together with amendments to a number of earlier laws, which in some cases are so extensive as to necessitate the reprinting of the entire law. This bulletin is in effect a supplement to Bulletin No. 126, issued two years ago as a complete compilation up to that date of existing legislation in this field.

The legislation of the year 1914 included three states—Kentucky, Louisiana and Maryland. One of these laws, that of Kentucky, was declared unconstitutional before it came into operation. That of Maryland superseded an earlier statute reported as unworkable. The new laws of 1915 cover the eight states of Colorado, Indiana, Maine, Montana, Oklahoma, Pennsylvania, Vermont and Wyoming, besides the territories of Alaska and Hawaii. The legislation of 1914 included also a presidential order providing a compensation system for employees of the Panama Canal and the Panama R.R., while that of the current year includes a similar order extending the Fed-

GLEN WHITE PUPILS, COLORED AND WHITE, COME OUT TO WELCOME THE VISITING FINANCIERS

eral Compensation Act of 1908 to workmen engaged on or about the Government railway in Alaska. With the legislation of these two years 31 states and the territories of Alaska and Hawaii now have compensation laws. A Federal statute covers also about one-fourth of the civilian employees of the United States. All of this legislation has been enacted since 1908, and practically all of the existing legislation in the states since 1910.

How the Laws Differ from State to State

Of the new laws of 1914 and 1915 one, that of Wyoming, must be classed as a compulsory insurance law, while those of Maryland and Oklahoma are compulsory compensation laws. In the other eight states the law permits the employer to elect or reject the compensation act. In case he rejects it, however, he is deprived of the customary defences under the liability laws.

Some of the newer laws have certain features which are of special interest and worthy of mention. The Oklahoma statute, for example, applies only to cases of nonfatal accidents, while in Wyoming all awards, whether for death or disability, are in the form of lump-sum payments arbitrarily fixed by the statute without regard to the earning capacity of the injured person. The Alaska statute also provides for lump-sum payments, except for temporary disability. Legislation elsewhere has very generally provided for periodical payments graduated according to wage loss, and this method is favored by practically all authorities.

First-Aid Meet at Indiana, Penn.

SYNOPSIS—A meet held in connection with a centennial celebration, the work of organization being effected by a supply house. There was a tie for first place. One of the teams thus tied has volunteered and will go to the front as a first-aid corps with the Tenth Regiment.

In the first-aid meet held in connection with the Indiana Centennial Celebration on Friday, June 23, 26 teams from Indiana, Armstrong, Cambria and Somerset Counties, of Pennsylvania, participated. The contest was held under the joint auspices of the Centennial Committee of Indiana and the Mine Safety Appliances Co. and was staged on the campus of the State Normal School.

The arrangement committee consisted of L. A. Robinson, Jr., chairman; F. M. Fritchman, W. B. Wardrop, C. W. Stuart, A. L. Rees, F. L. Vinton, B. H. Litchteberg and J. T. Ryan.

The judges were J. T. Ryan, Pittsburgh, chief; Dr. Shaulis, Dr. W. A. Simpson, Dr. George Simpson, Dr. H. A. Stewart, Dr. C. E. Rink, Dr. Fred St. Clair, Dr. G. W. Gates, Dr. W. F. Weitzel, Dr. H. B. Neal, all of Indiana, Penn.; William T. Nesbit, chief safety inspector for Keystone Coal and Coke Co.; W. G. Duncan and H. E. Smith, mine inspectors for the Associated Companies; State Mine Inspectors, C. H. Crocker, T. A. Furness and Thomas Lowther; J. A. Snyder, first-aid instructor, Berwind-White Coal Mining Co.; James O. Davis, of Roaring Run, and Edmund Williams, first-aid instructor for the Cambria Steel Co.

The recorders were D. J. Parker, of the Bureau of Mines; G. C. Nelms, safety engineer, Pittsburgh, Penn., and E. D. Bullard, safety engineer, of San Francisco, Calif. F. L. Vinton, of Indiana, Penn., was field marshal and H. D. Mason, safety engineer, Pittsburgh, announced the events.

The following events were submitted:

One-Man Event—Gash on right knee; severe cut on palm of left hand; bright red blood. Treat and carry 30 ft.

Two-Man Event—Patient found unconscious lying on electric wire, face down, and with a simple fracture of the right forearm. Remove from wire and treat the case. Artificial respiration should be performed for 2 min.

Full Team Events—(1) Miner found with broken back. Treat. Prepare patient for removal from mine and stand in upright position. (2) Man has been run over by electric motor, right arm cut off close to shoulder; profuse bleeding; several ribs broken on right side. Treat and carry 25 ft. on improvised stretcher.

The Snyder team of the Brush Creek Coal Mining Co. and the Iselin team of the Pittsburgh Gas Coal Co. were tied for first place, each having a perfect score of 100 per cent. The prizes of $50 for the best team and $30 for the second were divided equally between them. The medals given by the National Safety Council to members of the team having the highest average were awarded to the Brush Creek squad, the work of which, in the opinion of the judges, was a little better than that done by the Iselin team.

The third prize of $20 went to the St. Benedict team, of Peale, Peacock and Kerr. There were 12 teams tied in the two-man event, the Russell Coal Mining Co.'s Dixonville team winning the draw. The prizes for this event were pocket knives. The Iselin team of the Pittsburgh Gas Coal Co. drew the lucky number to decide the winner of the one-man event in which three teams were tied. The prizes were two Koehler aluminum safety lamps donated by the Mine Safety Appliances Co.

The medals were presented by J. I. Wilson, of Indiana, and J. E. Peeler presented the other prizes. The Wehrum team of the Lackawanna Coal and Coke Co. received much applause for its efficient treatment of the broken-back injury.

The Iselin team, which tied with Snyder for first place, has enlisted in the Tenth Regiment of the Pennsylvania National Guard for first-aid work and will go to the front with Company F of Indiana. Although this meet was merely incidental to the Miners' Day celebration, a part of Indiana's Centennial, it is thought likely that the event will become an annual feature hereafter, as most of the teams expressed a desire to make it a permanent institution.

The Unnecessary Blood Toll of Industry—There has been a superstition about accidents that they were something inevitable, the outcome of fate. When the pious workman lost his leg, it was God's will. If he was not a religious man he said the accident "was coming to him," and the man beside him said, "I am going to get mine some day." That was the way workmen talked in general 15 to 20 years ago. And the man at the factory or railroad had the same attitude: "Accidents are unavoidable. It's one of the prices we pay for progress." Blood and shattered bodies, that is the price we were paying for prosperity, and the public at one time agreed that the cost could not be avoided.—Ida M. Tarbell, at Chicago Meeting of the National Safety Council.

TEAMS WHICH AMONG MANY OTHERS SHOW HOW FIRST AID HAS PROGRESSED IN CENTRAL PENNSYLVANIA

St. Benedict team of Peale, Peacock & Kerr, Inc., third prize

Florence team of Rochester & Pittsburgh Coal and Iron Co.

Sagamore No. 2 team of Buffalo & Susquehanna Coal and Coke Co.

Discussion by Readers

Thrift Among Miners

Letter No. 5—I have been reading some of the letters written on this subject, and it seems to me that many of the criticisms and statements relating to coal miners and their habits in life are severe. In some cases it would appear that the writer's knowledge of conditions prevailing in mining camps is quite limited. I want to add a word or two in defense of the general class of coal miners, which I believe comprises some of the bravest and most generous-hearted men in any industry. It is a mistake to judge all men alike, or to suppose that different communities can measure up to the same standard of perfection either physically or morally.

The coal-mining industry has given employment to men coming from all parts of the world, and as a result we find in almost every large mining camp or community a certain number of hoodlums and roughnecks who bear no comparison with the great mass of English-speaking miners, composed of English, Irish, Scotch, Welsh and Americans. These, together with a large class of German, French and Belgian miners and a sprinkling of Swedes, Norwegians, Danes and Finns, constitute largely the more enlightened element in our mining communities.

Some mining centers are largely made up of a drifting element—men who are constantly moving from one place to another and contented only when they have their kits on their backs looking for another job. This has been particularly true of West Virginia and western Kentucky. This element comprises a class of men who cannot justly be compared with the great body of coal miners who have pioneered in this country, opening up and settling large mining sections by clearing the lands, making roads and building homes, schools and churches. The push and energy of this class have enabled the wheels of commerce to turn and made the industry of coal mining what it is today. One district I have in mind has grown to a settlement of twelve churches, eight schools and one large high school, occupying a substantial brick building.

The Miner Unduly Blamed

Referring to Letter No. 3, *Coal Age,* Apr. 1, p. 608, I judge by the tone of the writer that he has dug coal and, whatever his present occupation may be, he is still a miner. I believe he knows that miners need no charity. They want simple justice from their employers and the public in general. The letter refers to the "wasteful expenditures" of miners as being encouraged by the many idle days. But these conditions prevail to a greater or less extent in every industry, where we find the same wasteful expenditure.

Neither can I indorse the suggestion that "thrift may prove a practical hindrance." The fault in this respect lies wholly with the mine foreman or other official who fails to give each man a square deal. I admit that I have known some mine foremen to urge their men to spend more money at the store, instead of advising them to save their earnings for a time when they may need them. But such a man will never be able to command the respect of those working for him.

In closing, allow me to say that every mine superintendent and foreman has a duty to perform outside of merely drawing his salary. They must consider the best interests, welfare and comfort of the men working under them. I am pleased to say that I have been employed by companies that would not tolerate the action of a mine superintendent or foreman who would return an uncivil answer to a man in the company's employ. I have even known a surly foreman to be dismissed from the company for just such disrespect shown toward his men. W. D. Roberts.

Rock Forge, W. Va.

Letter No. 6—Thrift among miners, like thrift among any class of people, depends to a great extent on the housewife. The reason for this is evident when it is remembered that the grocery bill is generally the largest item of expense in any average family. The most important factor, however, in this connection, is the need of buying food that can be utilized by the family and is adapted to their particular needs.

Unfortunately, not one housewife in a hundred has made a study of food and dietetics. The miner's wife is not alone in this class. It often happens that the wife of a man employed in an office gives him food fitted for the work of a miner, and not infrequently the miner's wife serves him with food that is ill-adapted to give him the muscle and sinew required for his work.

An Apt Illustration

Let me illustrate: A mother would not think of giving her daughter a piece of cloth and telling her to make a dress without instructing her in regard to the work. But she permits her daughter to grow to womanhood and become a wife and mother without having gained the knowledge necessary to select and cook the food that will be required for her family. It is possible for the girl to buy her clothes ready-made in suitable style, but the grocer only supplies the food selected at random by his customers, according to their varying tastes and appetites and with little thought of providing what the body needs.

It is seldom true that the appeasing of the appetite satisfies the demands of one's physical system, but the average housewife fails to comprehend the difference. There are two things that a thrifty housewife should know and consider: First, the kind of food her husband and children need; second, what articles of diet will supply those needs at the least cost. In this knowledge lies the secret of household economy.

My heart goes out toward the ambitious miner who is striving to lay by something against a rainy day and whose income depends on his labor, which is limited by his muscular strength and endurance. Simply for a lack of proper food—in kind, not in quantity—his strength gives out and he goes home early, his earning power being thus curtailed by his exhausted condition. He may be called "lazy," or "of no account," when the wife is really to blame for

giving him food that has not supplied the demands of his nature.

The essential ingredients of animal food are classified as proteids, carbohydrates and fats. Of these the proteids and fats are the most expensive, the former being the chief constituent of meat, which also forms a large source of supply of the latter. They are absolutely essential, however, to a substantial diet, and the problem is to find a cheap source of their supply. A food chart shows that the proteids are found in even greater quantity in dried beans, peas and other leguminous plants, which can be procured at a much lower cost than meat or, better still, obtained in plentiful supply from the garden that should form a part of every miner's home.

Again, the food chart shows that milk is the most perfect food and the cheapest source of supply of the fatty substances required to sustain life. From this source come butter, cheese and buttermilk, all of which are easily digested and good articles of diet. Every thrifty housewife can have her own supply of these necessary articles of food. We learn that a cup of cheese and four eggs are equivalent to approximately 2 lb. of meat and cost barely half as much.

As an illustration of unknowing extravagance, a housewife who prided herself on her economy served for luncheon for an invited guest five different starchy foods, only one or two of which the body could appropriate, while the other three would be wasted in the system. The carbohydrates are an important element of food and include the starches, sugars and celluloses. They contain carbon, hydrogen and oxygen but no nitrogen, which is supplied only by the proteids. A similar illustration is found in the instance of a housewife who has five in the family and uses 10 lb. of lard a week regularly.

The Drink Habit Induced by Unfit Food

Much has been said about thriftlessness being caused by the drink habit, and too many housewives can vouch for this statement. But they would be horrified to be told that they themselves are often partly if not wholly to blame for this habit of their husbands, which has grown out of the craving of his system for what the alcohol in the whisky supplies. Were the wife to stop her nagging and give her husband the food his system demands, there would be a less craving for the liquor that destroys his usefulness in the home. In states where prohibition has forbidden the sale of intoxicating drinks, such dope as coca cola has taken its place. I am glad to say that the T. C. I. & R.R. Co. has adopted the plan of supplying both sweet milk and buttermilk, which are first offered or suggested at stands when coca cola is ordered.

One of the greatest problems in our mining camps is, How can the housewife make herself more efficient? In answer to this question, a domestic-science department has been organized here to instruct the children in school and, once a week, a demonstration is given of proper food articles and cooking, for the benefit of housewives. It may not be known that the Government at Washington has prepared at great expense pamphlets written by experts who have tested the food value of different articles of diet offered on the market. These pamphlets can be obtained for the asking and should be read and studied by every housewife. I want to repeat that thrift among miners depends upon thrift among miners' wives.

Ensley, Edgewater Mines, Ala. E. E.

Waste of Material in Mines

Letter No. 5—The careful and judicious use of all material sent into a mine is absolutely necessary for economy of operation, which will insure an increased profit not only to the operator but to the mine worker as well. A single instance of waste may appear insignificant and is so when considered alone, but taken in the aggregate the value of such waste of material is startling in comparison with the total value of the coal produced.

It is the thoughtless habit of men who persist in attaching no value to single instances of waste, both inside and outside of the mines, that leads eventually to a surprising total and greatly increases the cost of production. If these particular instances of waste in each department could be tabulated and the value of the material charged in one lump sum to the proper department, it would have the effect of impressing more vividly on the minds of those guilty of willful or thoughtless extravagance and waste than is possible by any amount of continuous harping on "greater economy."

What is needed to convince men is a concrete example that they are able to appreciate. Indeed, among reasonable men, it is possible to produce a like impression of the need of economy in little things, by simply assuming, for example, a slight and almost negligible loss or waste in the different kinds of material used each day and, with this as a basis of calculation, showing the aggregate loss that must be added to the cost sheet if such waste is permitted.

Doubtless the greatest cause of extravagance and waste in the use of material is the failure of workmen to appreciate the fact, which is nevertheless true, that the economy of material resulting in a lower cost of production is as great a source of benefit to them as to their employers. It is more difficult to convince the average worker of this fact, owing to the relations that have existed for so long a period between employer and employed. For this reason every effort should be made to show employees their responsibility for the use of material placed in their hands, making them accountable for such supplies. By this means it may be possible to secure the necessary coöperation of the workers, by engendering in their minds a sentiment of mutual interest and showing them that any increase in the cost of operation is an indirect tax on their daily wage and earnings.

Waste May Occur in Ordering or Receiving Wrong or Inferior Material

Previous letters have explained various ways in which waste occurs in mines through carelessness in the handling, use and storage, or rather lack of storage, of mine supplies. Granting the truth of these sources of waste, I want to add that there is equal need of economy and improvement in the ordering and inspection of material outside of the mine. Through carelessness or misunderstanding, the wrong kind of material is often sent to the mine and accepted. Likewise, material of inferior grade and quality is frequently received and accepted before being suitably inspected.

I recall an instance of this kind at a mine of which I had charge, where brattice boards only 6 in. wide were received and accepted as suitable for mine use; track ties 3 or 4 in. in thickness were taken to be laid under 40-lb. iron, and posts and crossbars of inferior size and

quality were likewise delivered at the mine and accepted. In one instance, I remember that the superintendent answered a complaint that the posts were too small by saying, "Tell them if one post is not enough, to use two or three."

It is no wonder that practical men in charge of underground work refuse to use such material or fail to economize in its use when it is sent into the mine. Crossbars dried out (not seasoned) and sawed across the grain become a menace to safety except when used for temporary purposes. Where these conditions prevail, there can be little doubt that the same degree of carelessness and indiscretion exists in other departments.

Let me emphasize the fact that there should be a debit and credit account kept in each department, which would show a true balance for that department. The system in use in many mines of so distributing the credits to different departments as to show a desired balance not only leads to confusion but is an imposition, making it practically impossible to determine where undue waste occurs. Such a system invites carelessness and places a premium on dishonesty, while discounting thrift.

——, Penn. A. M. INER.

Mining Thin Coal Seams

Letter No. 1—Referring to the inquiry submitted by "Superintendent," on the mining of thin coal seams, *Coal Age,* June 17, p. 1067, permit me to suggest the following:

Seam No. 1—This is described as a high-grade bituminous coal 3½ ft. thick, overlaid with a bad roof of heavy clay shale, cut across its bedding plane by many slips. Some important items are not given, such as the depth and nature of the strata overlying the roof shale and the inclination of the seam. However, assuming that the coal lies at a depth not exceeding 80 or 100 yd. and has a uniform grade of about 2 in. in a yard and well-defined natural cleavages, a shaft should be sunk as near to the lower end of the property as surface conditions and shipping facilities will permit. This will afford good drainage toward the shaft and will greatly facilitate the haulage of the coal by giving a grade in favor of the loaded cars.

I would adopt the longwall system in working this coal and, after leaving a sufficient shaft pillar to protect the bottom and connecting the two shafts underground, drive double entries through the pillar, in both directions from the hoisting shaft. Cross-entries should then be started on about a three-quarter course with the natural cleavage of the coal, which would give a loose end for the rooms on one side of the entry, while those on the other side could be advanced in step work.

Such a system as I have described proved very successful in South Wales about 20 years ago, under conditions similar to those here mentioned. The coal in that case was 3 ft. thick, overlaid with 3½ ft. of a shaly clay. This coal was first worked on the room-and-pillar system, but the roof cut up in holes in a manner that was very dangerous. The adoption of the longwall system in that case proved a great advantage. The ventilation was much improved, which resulted in drying out the roof. This had always been wet in the room-and-pillar system, which was the direct cause of the cutting of the roof that I have mentioned.

When working in the room-and-pillar system the slips in the roof gave much trouble and to avoid the danger of falls cap pieces 2 ft. long were put above the posts and set across the slips so as to properly secure the roof ahead when the coal broke down. These posts were set as close as practicable to the face of the coal. The rooms were 30 ft. apart center to center. The roof shale was taken down over the roads so as to provide sufficient headroom for the cars. Cogs were built 9 ft. apart at the sides of the roads and the refuse from brushing the roof was stowed between them. When the longwall system was adopted, the roof would bend and become very tough and often required to be blasted above the road. The timbers on the roadways were notched so as to provide for both roof and side pressure. As these timbers were renewed, the old sticks were used for building cogs.

Seam No. 2—This is described as an anthracite seam with a 20-in. shale parting and a floor of shale. The upper coal was 32 in. and the lower coal 14 in. in thickness. Since the nature of the roof and the inclination of the seam are not given, it may be assumed that the coal lies level and has a good roof. In my opinion, this seam could be worked to advantage by the longwall system. In that case the shaft should be sunk as near the center of the property as practicable, which would enable the coal to be reached with equal facility on all sides of the shaft and provide for the largest possible output during the life of the mine.

As before, a sufficient shaft pillar should be left and double entries driven in both directions from the hoisting shaft, which should be connected with the airshaft underground. In this case, the cross-entries or diagonal roads should be driven from the end of the shaft pillar at an angle of 45 deg., thus providing a more or less complete circle at the working face.

The top coal should be worked about 2½ ft. in advance of the shale parting and the lower coal. The resulting heaving of the bottom as the weight comes on will then break the bottom coal and the parting, which must be separated from the coal before loading it into the cars. Another plan would be to use machines to cut the clay parting over the bottom coal and mine that bench first, after which the upper coal can be broken down with wedges if it does not fall from the weight of the roof resting upon it. The choice of these methods can best be decided by the foreman in charge.

In one instance I remember working a double seam where the top coal was 30 in. thick and the bottom coal 18 in. thick, the two benches being separated by 2 ft. of clod. In that case the upper coal was mined with a pick in the usual manner and the heaving of the bottom broke the stone parting in large chunks, which were then removed by bars. The general arrangement was such as I have previously described, except that no cross-timber was needed to support the roof, which was good.

Seam No. 3—I would be inclined to open this seam in the same manner as described previously. It is impossible to give an accurate description, however, without a further knowledge of the existing conditions, both on the surface and underground. The general contour of the surface and the depth and inclination of the seam, as previously stated, will have much to do with modifying the system adopted in respect to the haulage of the coal and the drainage and ventilation of the mine.

Mystic, Iowa. WILLIAM JAMES.

Detecting Gas by Smell

Letter No. 11—The discussion of the question of detecting gas by smell has interested me, as I have had much of the same experience, although I cannot say that it has occurred in reference to marsh gas as often as with carbon dioxide.

Textbooks describe marsh gas as being "odorless, colorless and tasteless." Yet, when entering a body of this gas, I am always able to detect its presence without the aid of a lamp. I do not claim that this comes by smelling the gas, but by some means or sensation I am made aware of its presence. I may say that there is a damp odor often noticed where the gas is found. However, the same damp smell is sometimes found when you can find no trace of the gas. The sensation may be felt by other organs than those of smelling.

My experience is that marsh gas produces a stupifying effect the same as a narcotic, acting on the nerve centers and causing a relaxation of the muscles, and the man falls to the ground. I believe it is possible for an old miner to detect marsh gas as quickly as I would detect carbon dioxide by its effect on the senses. The subject is an interesting one to all concerned in the study of mine gases.

ELMER FULTON.

Spangler, Penn.

Letter No. 12—I have followed with interest and pleasure the several letters that have discussed this question. While not wishing to dispute the conclusions of I. C. Parfitt, as expressed in his Letter No. 3, *Coal Age,* June 3, p. 981, I must state that our experiences are not similar in respect to smelling gas in mines, since I have seen this fact demonstrated in at least 20 different mines, in as many different locations. In each case the presence of the gas was verified by the use of a safety lamp. I feel confident, therefore, that the sense of smell is a sure indicator of the presence of mine gas when this sense has been properly cultivated. I cannot admit that this belief is, as Mr. Parfitt states, "based largely on an erroneous supposition."

To illustrate my idea, let me refer to one's ability to determine the strength of an ammonia solution more or less closely by smelling. For example, a much-diluted ammonia solution used for washing purposes in the household is readily distinguished from a much stronger solution containing, say, 26 per cent. A little practice will enable one to determine approximately the relative strength of these solutions.

In my opinion it is possible to cultivate the sense of smell so as to be able to determine more or less closely the percentage of gas in a firedamp mixture by its effect on the nostrils. It may require several years of experience in gas, however, and a close observation of the percentage of gas present, as indicated by the flame of a safety lamp, to enable one to do this. I do not wish to be understood as meaning that the percentage of gas can be estimated closely in this manner, but rather that the gas can be detected by smell and the comparative danger of the mixture estimated, at times and in places, more effectually in this manner than by the use of a safety lamp, which it is not always possible to insert where the gas has accumulated.

To illustrate this point let me cite an instance that occurred several years ago, when two firebosses were examining a hole in a mine that was entirely free from gas. Putting his head into the hole, Jack exclaimed, "There's gas up here." Both men failed to find the gas with their lamps, however, although Jack confidently asserted, "It's there, and I know it." To this Tom replied, "If it's there, I'll find it," and suiting the action to the word, he unlocked his safety lamp and raised the flame into the hole. Their alertness was all that prevented a fashionable midsummer hair-cut, and both were convinced that it was marsh gas, "sure thing." I believe that different firedamp mixtures produce their effect on the senses similar to the lengthening of the flame of the lamp, but long practice is necessary to distinguish this effect correctly.

In Letter No. 4 on the same page, W. L. Morgan claims that he cannot understand how men would fall down after taking a single breath of the gas. In reply I would say that Mr. Morgan cannot have experienced the condition favorable for a complete "knockout." Probably too much available oxygen was present in Mr. Morgan's case to produce this result. When lifting a heavy crossbar, and after inserting one end into a hole in the rib, a man stooping and lifting the other end naturally exhales the air from his lungs and then takes a deep breath when placing the other end of the bar in position. The effect is, or may be under favorable conditions, like a distinct blow on the brain, and the man drops to the floor. I would rather take exception to Mr. Morgan's conclusion that the effect he describes at the close of his letter was due to the presence of hydrogen sulphide, which has not been conspicuous in my experience with mine gases.

In closing I want to say that one can cultivate his sense of smell as well as my mine foreman has learned to wiggle his ear, which he can do as easily as I can snap my finger. He can shake a fly from his ear quicker than I can raise my hand to brush it away. Cultivation has given him control of those muscles.

Dunbar, Penn. JOSEPH A. GREAVES.

Letter No. 13—Textbooks treating on mine gases all agree that marsh gas in a pure state is odorless. This is also true in respect to the other principal mine gases except hydrogen sulphide, which has a strong disagreeable odor. All these gases affect the human system more or less. Evidently, if marsh gas is odorless, the only way that it can be detected without the aid of the lamp is through the sense of feeling; and in a case of that kind it would be hard to determine the nature of the gas. It is clear to my mind it is not marsh gas that we smell in coal mines but a mixture of other gases, as suggested in the reply to this inquiry, *Coal Age,* May 6, p. 815.

Places that are poorly ventilated in coal mines generally have a smell not found in better-ventilated places whether they contain firedamp or not. If the air current is not strong enough to sweep the gases from a working face, it is evidently not strong enough to carry away the smell produced by burning fuse, powder and dust, which smell may be attributed to gas. I do not know what percentage of hydrogen sulphide the air must contain before it will affect the sense of smell, but it is probably very slight since 1 per cent. may prove fatal when breathed.

I have gone into places in the mine where the smell and even the sensation experienced indicated to me the presence of gas, but a test with the safety lamp would

not reveal even a trace of gas. Again, I have found gas in places where there was no smell to indicate its presence. For this reason I believe that the sense of smell is not to be relied on as a safe method of testing and detecting the presence of gas in coal mines.

I had a similar experience to that described by Mr. Greaves in the inquiry to which I have referred. Having occasion one time to clear the gas out of a heading that was going considerably to the rise, I found it necessary to attach a curtain to the outby corner of the last breakthrough and extend it up the middle of the entry so the air going up one side of the curtain and returning down the other side would clear out the gas as we advanced with the curtain. I would hold my breath while driving nails near the roof; but, forgetting myself at one time, I drew a full breath with my head near the roof and fell to the bottom as quickly as if I had received a heavy blow on the head with a hammer. The air being fresh at the floor, however, I soon revived, feeling but little the worse for the experience.

On another occasion, in company with two other miners, I was testing for gas in an entry that had been closed for a few weeks. We were proceeding very slowly, expecting to come in contact with a body of gas at any moment, as there was but little ventilation in the entry at the time. I was in front with the safety lamp, holding it near the roof and carefully watching for any indication of gas that might appear. The other miners were about six feet behind me when suddenly I became dizzy and felt a buzzing sensation in my ears. I said, "Boys, we cannot proceed any farther," and turning around, would have fallen had they not caught me and assisted me to where the air was fresher. This time I was left with a very severe headache, which required several hours to pass away. The effects were similar to those produced by inhaling afterdamp. My lamp did not indicate the presence of gas, neither did my sense of smell or that of the two miners with me, both of whom were affected but not to the same extent.

JOHN ROSE,
Dayton, Tenn. Former District Mine Inspector.

The Efficient Fireboss

Letter No. 19—Give this letter any number you choose, but let me dip my pen and say a word for the efficient fireboss in this discussion. I have been reading the letters written so far and must say that some of the statements made are laughable, while others get on your nerve.

Some of these letters, I should judge, were written by men who have never firebossed in their lives or had any experience whatever in coal mining. Probably they have not the nerve required for the work. My experience of 30 years in all classes of mining work, from trapper boy to mine superintendent, leads me to say that the work of the fireboss is the most hazardous done in the mine. Until quite recently it has been the most thankless job in mining, and in my opinion the work, when properly done by a competent efficient man, should command good pay.

From my knowledge of firebossing, a territory requiring a fireboss to travel 12 mi. cannot be properly examined by one man. I would pity the miner who would seek such a place. A territory half as large should be enough for any fireboss to examine and, in some seams of coal, even that amount would be too great.

The work of the fireboss requires him to lose much needed sleep. In warm weather it is hard for a man to sleep in the daytime and many a fireboss is robbed of his rest on this account. Permit me to say that a good careful man in this position should be handed all the roses to which he is entitled, here and hereafter, and then some. D. C.

Crabtree, Penn.

Letter No. 20—Speaking of firebosses, their work and responsibilities, permit me to give a little of my own experience, which covers a period of 20 years, both firebossing and serving as mine foreman in Pennsylvania. My experience has been gained in both anthracite and bituminous mines.

My first position as fireboss was in the Hillman vein shaft, at Wilkes-Barre, Penn. At that time this was one of the most gaseous mines in the state. Mixed lights were used, which fact required the exercise of the greatest caution in respect to maintaining a good ventilating current in circulation throughout the mine at all times during working hours. The mine generated gas so rapidly that any slight decrease in the ventilating current would cause the gas to show distinctly on the lamp flame in a few minutes.

On one occasion the superintendent, mine foreman and myself were below, measuring up yardage, when the fan engineer telephoned that there was something wrong with the fan. It was ascertained later that a fall had occurred on the main aircourse. Not knowing what was wrong, however, the superintendent started at once for the surface to investigate, telling me to wait for his orders before doing anything. The fan was still running, but only causing a current up one side and down the other in the fan shaft, which did not affect the mine.

Observing that the air in the mine was still and knowing well the danger, I did not wait for orders from the superintendent, but proceeded at once to secure all the reliable help at hand to notify the men and get them out of the mine. This was done none too soon, as the mine air was becoming highly charged with gas. Had I obeyed orders and awaited word from the superintendent at the surface, none of us would have come out of the mine alive.

To disobey orders at that time was to run the chance of losing one's job. I am glad to say this is not the case today. The safety-first movement has made a wonderful change in coal mining. Today the fireboss acts on his own responsibility without fear of losing his place. He can mark off any place or section of the mine that in his judgment is unsafe, and he has the support of the higher officials in so doing.

In my opinion an efficient fireboss must have several years' experience in mining coal at the face and performing general work in a gaseous mine. He must have a good knowledge of the principles of mine ventilation and the laws relating to the same. He must know the properties of mine gases and understand how to handle them. He must understand the effect on the atmosphere of the mine caused by any increase or decrease in barometric pressure. Above all, he must be a man of temperate habits, conscientious and industrious. FRED NICHOLS.

Johnstown, Penn.

Inquiries of General Interest

Requirements and Signals in Hoisting Practice

Being employed as hoisting engineer in charge of a slope hoist at a coal mine in this state, I should like to be well informed in regard to standard rules and signals in hoisting practice, especially such rules and signals as relate to safety in hoisting. I want to understand what is expected of a hoisting engineer in the regular performance of his duties. I desire to know this, not only for my own protection in case of accident that may occur from the neglect or carelessness of others, but also for the safety of the men in hoisting.

It is claimed here that there is a code of signals that relates to shaft hoisting in metal mines, but this system is not used at coal mines and has largely fallen into disuse and become a dead letter in the metal mines of the state. There is no examination of hoisting engineers required by law in Wyoming. I should like to know the scope of such an examination and what an engineer should study to prepare himself for such a test.

Rock Springs, Wyo. JOHN VAIL.

It cannot be said that there is any recognized standard of rules and signals in hoisting practice. Notwithstanding the importance of a uniform set of hoisting signals, little effort has been made until recently to establish such a standard. We understand that the National Safety Council, of which James W. Paul, Pittsburgh, Penn., is chairman, has appointed a committee to investigate and report on suitable safety signs and signals for use in mining practice.

Attention has been drawn at different times in *Coal Age* to the need of a uniform code of signals and safety signs to be used at all mines, as a means of avoiding accidents by reason of unfamiliarity on the part of the miner with the signals employed at different mines. Accustomed to certain signals in one mine and going to another mine, the mine worker fails to understand the signals given, which have a different meaning in the two mines. As a result, a fatal accident is liable to occur, which would be avoided if a uniform code of signals was in use at all mines.

The bituminous-mine laws of Pennsylvania and the mining laws of Ohio, Illinois, Iowa and Colorado are all uniform in respect to the first three signals in hoisting practice, which are as follows:

From Bottom to Top—One ring or whistle, hoist cage (when cage is at rest at or near the bottom); stop cage (when cage is in motion anywhere in the shaft). Two rings or whistles, lower cage. Three rings or whistles, men are ready to get on cage and await the answer of one ring or whistle from the engineer signifying that he is ready to hoist men. The men then get on the cage, and a single ring or whistle is given as the signal for the engineer to hoist.

Thus far the signals required by law in the five states mentioned are uniform. The Pennsylvania bituminous-mine law makes four rings or whistles, from bottom to top, mean a call for the engineer on the surface to give steam to the mine pumps. In Illinois, Iowa and Ohio, however, four rings or whistles, from bottom to top, are made by law a signal for the engineer to hoist or lower the cage slowly with caution, this signal implying danger. In the same three states, Illinois, Iowa and Ohio, the mining law makes five rings or whistles, from bottom to top, announce an accident in the mine and call for stretchers to be sent down the shaft.

The mining law of Illinois makes six rings or whistles a signal for the engineer not to move the cage until another signal is given. The mining law of Iowa, however, makes six rings or whistles a signal for the engineer on the surface to reverse the fan.

The mining laws of Illinois, Iowa and Ohio specify that one ring or whistle, from top to bottom, signifies that the engineer is ready to hoist men. This signal is given in response to three bells or whistles from the bottom, as previously explained. Two bells, from top to bottom, are made by law, in these three states, a call for the bottom man to "bell away" an empty cage. While the mining law of Colorado and the bituminous-mine law of Pennsylvania do not mention these signals, they are in common use in the coal mines of those states. It may also be stated that the first three signals, including one, two and three bells or whistles, though not required by law in other states, are almost universally used in mining practice in all states. The four rings or whistles required by law in Illinois, Iowa and Ohio comprise an important safety signal that should be made uniform at all mines; also, five rings or whistles should announce an accident in the mine and summon aid from the surface.

A hoisting engineer should never move the cages in a shaft or slope when men are below, except in response to a clearly understood signal. When at the throttle he should give his undivided attention to his engine and be ready at any moment to shut off steam and apply the brake, if necessary. A hoisting engineer should study to familiarize himself thoroughly with the theory and practice of steam and the steam engine. He should understand every part of his engine and be able to detect and locate any trouble that may arise in its operation. The engineer should be on hand at least 15 min. before the time for him to take charge of the hoist, in order to enable him to examine closely the oil cups on the different bearings and ascertain that there are no loose nuts or other parts requiring attention. After a period of idleness and before hoisting men the engineer should make an extra trip to free the cylinders of any water of condensation and to insure the proper working of the engine. The rules for shaft hoisting apply alike to a slope hoist. In order to fit himself to pass an examination, a hoisting engineer should study the state mining law and textbooks on steam and the steam engine. The examinations of hoisting engineers in Illinois, Indiana and Iowa are typical of the scope of questions asked.

Examination Questions

Pennsylvania Bituminous Mine Foremen's Examination April 11-13, 1916

(Selected Questions)

Ques.—What is the principal purpose of the law in requiring the employment of a practical and competent mine foreman?

Ans.—The purpose is to secure the efficient and safe operation of mines in respect to the extracting, loading and hauling of the coal and the ventilation, drainage and timbering of the mine, and thereby provide for the health and safety of the men employed and the security of the property and conserve the mineral resources of the state and make the industry of mining of increased value to the commonwealth.

Ques.—When making your daily examination of the working places, what dangers would you try to discover?

Ans.—When examining a mine, one should observe carefully that the quantity of air in circulation is sufficient to comply with the mining law of the state and that the air current is conducted in such a manner as to sweep away the gases that would otherwise accumulate at the working faces and in any abandoned or void places in the mine or on the falls. Note that each working place is properly timbered and free from gas and that the miner is performing his work in a safe manner and is supplied with what timber is required to make his place safe for work. Observe that all crosscuts and breakthroughs are made at proper distances apart and of sufficient size, and that no room or heading is driven a greater distance ahead of the air than that between two consecutive breakthroughs. See that cars are properly loaded and handled, both in the rooms and on the mine roads, and that no cars are left standing at the face of the room without being blocked; or on a parting where they can run out onto the main track. Examine all drillholes to see that they are properly located and not too deep, also the methods of handling the powder and charging and firing the hole. If electricity is used in the mine, one should carefully observe that the wires are properly installed and that due care is taken by the men to avoid the danger of contact with live wires. If safety lamps are used, the condition of each miner's lamp and the manner in which he handles it should be closely observed.

Ques.—Does pillar work require more attention by mine officials than places advancing in the solid and, if so, why?

Ans.—When a place is advancing in the solid the roof is supported by the room pillars on each side and by the face of solid coal ahead. The formation in the roof strata has not, as yet, been disturbed and possesses its full strength. In the work of drawing back pillars, the conditions are quite the reverse of these. The roof strata, now disturbed and broken, are practically without support, resting on the pile of waste behind the miner and bearing heavily on the ends of the pillars being worked back. The pillar coal is more or less crushed by this heavy roof pressure and offers a feeble support. The miner is working on a loose end and is momentarily exposed to a fall of roof, which may occur without warning. The danger to which the miner is exposed and the possibility that a heavy fall of roof may be accompanied with a large outflow of gas or water into the mine require the closest attention of the mine officials to this class of work.

Ques.—What is the duty of the mine foreman relative to the removal of dangers reported?

Ans.—It is the duty of the mine foreman to attend promptly to the removal of such dangers or to withdraw the men working in that place or section of the mine until the same can be made safe for work.

Ques.—How would you proceed to timber an entry with a tender slate roof requiring crossbars, keeping in view both safety and economy?

Ans.—A miner working under such a roof must stand posts for a distance back from the face where a timber frame can be set without the liability of its being blown out by a shot. These posts must be set so as to give the miner the needed protection from the fall of slate. When returning to work at the beginning of each shift the miner must first reset any posts that have been blown out by the shots of the night before.

When setting a timber frame, under these conditions, a place should be cut in each rib near the floor so as to provide a secure resting place for the legs, which, with the collar they support, must be properly notched. The two legs are first stood in their respective places, one on each side of the entry, and the crossbar or collar is raised on the shoulder and fitted in turn to each leg. When all are in position, the frame is secured in its place by driving wedges between the collar and the roof a short distance from the top of each leg toward the center. No wedges should be driven in the center of the collar, as this will bring an undue pressure at that point when the roof settles and the timbers take the weight. If the coal is strong, the legs can be omitted and the crossbar set in hitches cut in the coal at the top of the seam. When necessary, lagging should be used above the collars, or the frames should be set sufficiently close together to give the needed support between adjoining sets.

Ques.—When, where and by whom are the air measurements to be taken and how reported?

Ans.—The Pennsylvania bituminous mine law requires the mine foreman or his assistant to measure the air at least once each week, on days when the mine is in operation, at the main intake and discharge, and in the last crosscut of the last room on each entry and beyond the last room turned on an entry. The law requires that these measurements be recorded with ink in a book kept for that purpose in the mine office at the mine. The report must state the quantity of air measured at each point, together with the area of the opening where the measurement was taken, and the velocity of the air as measured by the anemometer, also the number of men employed in each separate split of air. This report should be dated and signed by the person taking the measurements, though not so stated in the law.

Coal and Coke News

Washington, D. C.

A general investigation into freight rates in Alaska has been announced by the Interstate Commerce Commission to be undertaken upon its own motion. This investigation will deal particularly with the rates on mineral, coal especially. It will not only go into the reasonableness of the rates per se but will inquire into the question of whether or not any of the Alaska carriers are operating in violation of the commodities clause of the interstate commerce act. The Commission stipulated in its notice that the investigation would inquire into the "rates, practices, rules and regulations of common carriers governing the transportation of persons and property, subject to the jurisdiction of this Commission, wholly by railroad within Alaska, and partly by railroad and partly by water between points in the United States and points in Alaska, and from points in Alaska through Canada to points in Alaska, and also the rates, practices, rules and regulations of said common carriers in connection with the operation of wharves used in the course of such transportation."

The carriers named respondents to this proceeding include the Alaska Steamship Co., Pacific Coast Steamship Co., Copper River & Northwestern Railway Co., Northern Navigation Co., Ltd., Pacific & Arctic Railway and Navigation Co., British-Yukon Railway Co., British-Yukon Navigation Co., Ltd., British Columbia-Yukon Railway Co., American-Yukon Navigation Co., Valdez Dock Co., Kennecott Copper Corporation, Northern Commercial Co. and Pacific Coast Co.

The investigation will deal with the proportional rates and joint rail and water rates over such through routes as in the opinion of the Commission should be established between the points of origin and the various destinations in this general territory. The order of the Commission further stipulated "that said inquiry shall ascertain among other things whether mineral products are mined or produced by or under the authority of common carriers by railroad subject to the jurisdiction of this Commission engaged in the transportation thereof, or whether such common carriers own in whole or in part any mine or mines from which are produced minerals which they transport or whether such common carriers are directly or indirectly interested in any mine or mines from which are produced minerals which they transport."

HARRISBURG, PENN.

Barristers from all over the state recently heard an interesting review of how the Compensation Act has worked out during the first five months of its operation in a paper on the subject by Dr. Francis H. Bohlen, of the faculty of the University of Pennsylvania, legal adviser to the state workmen's compensation board. The paper was the feature of the session of the Pennsylvania Bar Association.

While generally commending the law, the paper pointed out a number of defects which ought to be remedied by further legislation. Among other things, the act should provide for medical attention beginning with the accident instead of with the time when disability was determined. The present provision often left the injured person without proper medical attention at the very time when he needed it most. There should also be compensation, not only for accident, but for occupational diseases, in the proper sense of the term—for certain diseases which are agreed to be peculiar to certain trades.

In an opinion written by Chairman Macky, of the compensation board, an employee of a company is entitled to compensation if he is injured on the company's premises while en route to his work. In accordance with the decision Andy Perfay, of Pittsburgh, is entitled to compensation from the Jones & Laughlin Steel Co. Perfay slipped on a track over which he was crossing on the company's property while going to his work. His leg was injured and he applied for compensation.

Referee Paul W. Houck, on July 1, decided that the amount spent by a miner for tools, powder and other supplies cannot be deducted from his wages when the amount due for compensation for injuries is calculated.

The only exception to this rule will be when the coal companies have specific contracts with the miners as to wages, and such contracts stipulate that supplies must be bought from the employer.

In the case at issue, that of Mrs. Jacob Reitmyer, against Coxe Bros. & Co., Inc., an award was made, $5,777, for the widow and two children, because of the death of the husband.

Escheat Act Is Attacked

Section after section of the escheat act of 1915, under the terms of which the state would collect the money obtained by coal operators under the anthracite coal-tax act of 1913, as well as all deposits and properties held by banks, trust companies and trustees unclaimed after 7 yr. was attacked as unconstitutional on June 27, in the Dauphin County Court in Harrisburg by John G. Johnson and Freeman & Watson, attorneys for Pittsburgh and Eastern parties. Deputy Attorney General Hargest defended the act, the administration of which has been held up by an injunction granted recently by the court.

That the act virtually means a confiscation of money and trust funds, with little or no means of redress to the owners, was Mr. Johnson's contention. The title of the act was attacked as failing to comply with the constitution.

It was argued that the law is faulty as no provision is made for the return of the money or property taken over by the state, even if ownership is proven. In the case of where money is taken over the owner may be reimbursed only after the Legislature appropriates money for the purpose.

Mr. Johnson argued that the idea of the act was to "grasp" money held for 6 or 7 yr. and that the act was not intended to take over only such moneys for which it was known that no owner existed.

David Speer, of Pittsburgh, and Frank M. Eastman, of Harrisburg, sought the court's permission to be made party defendants with the state. Speer is an advertising man who notified the newspapers of the state regarding advertisements they would get if the act was enforced. He claimed that the refusal of the Auditor General to enforce the act has meant that $56,000,000 which might be claimed through escheat proceedings were tied up in banking institutions. He has not yet been allowed to intervene.

The injunction case which restrains the Auidtor General from going ahead with enforcement of the act may be taken up when a decision is rendered depending on the outcome of the case heard this week.

What Is Reasonable Medical Attendance?

Employers, insurance companies, labor unions and physicians for employers have been wrangling ever since the workmen's compensation law was passed as to what constitutes "reasonable medical attendance."

Section 306 of the compensation law says: "During the first 14 days after disability begins the employer shall furnish reasonable surgical, medical and hospital services, medicine and supplies, as and when needed, unless the employee refuses to allow them to be furnished when needed."

To meet this want, which in view of the constantly multiplying number of cases that come up for adjustment, has become a pressing one, the bureau of medical education and licensure working in coöperation with the compensation board, advised the Board on July 1, as to what it regards as the "reasonable" service every employer should furnish to an injured person.

A "reasonable" minimum service in the case of minor injuries would be to transfer the injured man, the wounds having been untouched by anyone, to an incorporated hospital, place him under the care of a physician, or to administer first aid at the place of injury.

First aid having been rendered, a further "reasonable service" would require that the patient be attended by a physician, or taken to an incorporated hospital or to a central point containing at least two rooms that had been equipped to treat patients.

In the case of severe injuries first-aid treatment is prescribed, and then the patient must either be taken to a hospital, turned over to a physician or treated at an "emergency station equipped with definite emergency kits." The emergency station must be in charge of some one definitely assigned and trained for the post.

A "reasonable" emergency kit must contain the following: (a) Package done up in waxed paper containing aseptic dressings and a bandage or some safe and effective antiseptic, such

as a small vial of a 3 per cent. solution of tincture of iodine, a camel-hair brush and a bandage; (b) splints and bandages; (c) tourniquet.

In the case of wounds which involve breakage of the skin surface and when the open wound is not extensive a reasonable use of the "a" kit is to tear open the bandage, apply the antiseptic dressing or apply the iodine by means of the brush to the wound and over the surrounding skin and without any further handling whatsoever apply the bandage.

In the case of concerns employing 100 or more employees, a trained nurse must be employed at the emergency station. When less than 100 persons are employed, some one trained in first-aid work must be designated as the responsible attendant.

Aside from the first aid administered at emergency stations, no service rendered on the ground or in the plant could be considered "reasonable," the board says, unless rendered in a properly equipped dispensary.

The board also holds that even dispensary services could not be considered reasonable unless the injured person is attended by a licensed physician within 24 hr. after the application of the first treatment. Nor can dispensary treatment be renewed without first having been passed upon by a licensed physician.

It is further recommended that all hospitals owned or operated by employers be incorporated that they may be brought under state regulations.

PENNSYLVANIA

Anthracite

Shenandoah—Anthony Sivavich and Clement Nauch were severely burned by an explosion of gas recently in the Maple Hill mine, while Philip Muscski sustained similar injuries in Packer No. 5 colliery.

Hazleton—The annual outing of the Lehigh Valley Coal Company Social Association will be held at Bellewood Park, N. J., Aug. 18.

Tamaqua—The 150 firemen employed at several of the mines of the Lehigh Coal and Navigation Co. in the Panther Creek Valley recently went on strike claiming that the company is paying them less than the amount called for in the agreement signed last May. As a consequence of the strike more than 4,000 men are idle.

Plymouth—Operations were recently resumed at the No. 5 colliery of the Delaware & Hudson Coal Co., after a week's suspension due to the rope breaking and allowing both cages to fall down the shaft. Considerable damage was caused.

Bituminous

Philipsburg—Representatives of a majority of the mining companies in Cambria and Clearfield Counties recently met at Patton and purchased equipment for the three mine-rescue stations, which are to be established at Philipsburg, Barnesboro and Portage. It was voted to purchase two Fleuss and one Draeger outfits. It was also voted to completely equip the three stations with safety lamps, flashlights and all other paraphernalia used in this type of work.

Connellsville—Shipments of coke during the week ending June 24 aggregated 420,700 tons, showing a decrease of approximately 13,000 tons over the previous week.

Pittsburgh—It is reported that all the mines of the Pittsburgh Coal Co. are now working full time.

Uniontown—It is reported that there is now no difficulty experienced in securing a sufficient number of cars to handle the coal and coke business of the coke region. Such difficulty was experienced some time ago on account of the heavy freight movement eastward. There is at present a lull in the coke business which will continue for a short time on account of contract negotiations between operators and consumers, contracts for the next six months being now drawn up.

Charleroi—Fully half the miners of the Crescent, Eclipse and Albany mines recently returned to work following instructions given by the international officers of the union. It is believed that other mines will be started shortly, and it would appear that the worst of the strike which has been in effect for some time throughout this region, is past.

Indiana—The miners of the Rochester & Pittsburgh Coal Co. who struck several weeks ago have returned to work, as the company has made certain concessions to the men.

WEST VIRGINIA

Bluefield—Approximately 275 cars will leave the coal fields over the Norfolk & Western in the early part of July with 12,000 tons of coal for the naval base at Tiburon, Calif. It is understood that this is a part of a contract for 100,000 tons, and is the second shipment made to this naval base during the past month, the previous shipment being 5,000 tons. This installment comes under the regular contract signed by the Navy Department for the season, but it is understood that a request was received by the coal company for the immediate dispatch of this shipment. The island of Tiburon is in San Francisco harbor, and is used as a coaling station for the Pacific fleet.

Dry Branch—Plans are under way, it is said, for the opening of a mine in the Coalburg, Belmont, and No. 2 Gas seams on Wet Creek, about a mile from its mouth. It is also stated that the Drybranch Coal Co., D. C. Dickinson, president, of Malden, will reopen its mine in the No. 2 Gas seam, also it will increase its power supply either by remodeling its power plant or installing power from the local central station service.

Lowe—It is stated that the gardens of the employees of the Weyanoke Coal and Coke Co., which was among the first firms in West Virginia to offer prizes for gardens, are looking well. Nearly every employee is a contestant for the prizes.

Welch—The mines in this vicinity are running to their capacity of men and the railroad is furnishing the necessary cars. Improvements are being constantly made in this field, and some new developments seem likely on the land of the Bankers' Pocahontas Coal Land Co., between Welch and Davy, in coal measures lying under the No. 3 seam.

KENTUCKY

Owensboro—Following the referendum vote on the proposal that District 23 mine workers accept the proposal of the operators and return to work, a meeting of the miners was held here on June 28 and 29. The definite action was the resignation of Robert Pollock, president of the district organization, who said that he thought it his duty in view of accusations that officers had been unfaithful to their trusts. In this connection it is stated that there is a good deal of grumbling on he part of the mine workers who do not feel that they have been supported by the national organization in their strike. F. C. Hayes, of Indianapolis, vice-president of the national organization, was present at the meeting and urged that the workers accept the terms of the employers and return to work. The convention, however, ratified the action of the locals in declining the proposal. In spite of these actions, however, and in view of the small degree of disagreement, it is believed that progress toward resumption of work on a general scale is not far off. David Duncan, of Central City, becomes acting president of the District 23 organization.

OHIO

Glouster—The Sunday Creek Coal Co. has placed in operation its No. 10 mine, near this place, relieving a congestion of labor at several other operations to which idle men were balloted by the union organization. The company is rapidly placing its mines in operation, the San Toy properties being the sole exception, on account of the continued inability of the men and the company to get together on a working basis. The company has spent about $250,000 in the San Toy section, it is said, but the properties are idle in consequence of the labor situation.

Columbus—The production in the Youghiogheny and Pittsburgh fields is estimated to have been reduced by 10,000,000 tons on account of the labor troubles at the mines during the month of June, but with the continuation of the present car supply for the summer months and the usual fall shortage, there will be no opportunity for this shortage to be made up.

Bellaire—The No. 3 mine of the Rail and River Coal Co., at Big Run, south of Shadyside, recently resumed operation after two months' idleness. About 200 men were employed, but this number will probably be decidedly increased within a short time. During the suspension a number of improvements were made, the tipple being repaired and a new siding built.

ILLINOIS

Mascoutah—The Kolb Coal Co., as a result of obtaining the St. Louis Terminal Ry. and Wiggins Ferry Co. contracts, has resumed operations at its two Mascoutah mines and is preparing to resume at its Vinegar Hill mine near New Athens.

Belleville—The First Aid Society of Belleville has started a movement to secure a first-aid and mine-rescue station for that city. The State Mining Board will be asked to locate a station here for instructing miners in first aid and rescue work. If favorable action is taken on the request the state will furnish the entire equipment, including helmets, and will send an expert to have charge of the station and give instruction.

Quincy—The John L. Pipe Coal Co. is constructing a coal "silo" and elevator combined. It is built of concrete and when completed will be about 40 feet high. By its use it will be

possible to unload, sift and store a carload of coal in less than an hour. The coal cars will be dumped over a large pit and the coal drawn by buckets into the elevator, where it will be sifted and stored in the proper bins. Delivery wagons will be loaded by means of chutes.

IOWA

Des Moines—A 3-ft. bed of coal was recently located under Franklin St. by laborers in digging a sewage tunnel. This coal is reported to be of good quality, and it is believed may pay enough to cover the cost of the tunnel construction, as the bed is 3 ft. thick and follows the course of the tunnel. It is thought by some that this may lead to the discovery of further coal deposits in the vicinity.

OKLAHOMA

Muskogee—According to information received at the office of Gabe E. Parker, superintendent of the Five Civilized Indian Tribes in Oklahoma, representatives of the Choctaws and the coal operators in the segregated area of Southeastern Oklahoma, meeting with a sub-committee of the House Indian Committee, have agreed on amendments to the Owen-Garter bill for the sale of coal and asphalt deposits on Indian lands. One of these relates to disposition of advance royalties paid by operators. Such royalties are paid on unworked leases and credited on coal as mined in the future. The Choctaws wanted to retain all the advanced royalties, but yielded to a provision that if the present lessee is purchaser of the coal and asphalt deposits of the tract, one-half of the advanced royalties is to be applied to the purchase price. The leases have 15 yr. to run, and if the purchaser is other than the lessee, the latter is to be given credit for all the advanced royalties which must be paid by the purchaser to meet the terms of the leases. The advanced royalties held by the Indians amount to about $1,000,000.

PERSONALS

J. J. Stickler, State Mine Inspector of Hazleton, Penn., has just been allowed a patent for a device to dump mine cars.

James E. Meehan, has been appointed general superintendent of the new plant of the Diamond Smokeless Coal Mining Co. in Indiana County, Penn.

William Catherwood was recently elected a director at the Westmoreland Coal Co. to fill the vacancy on the board caused by the death of T. W. Brown.

J. W. Paul, mine-rescue expert, formerly with the Pittsburgh Bureau of Mines, recently returned from an extended trip through the zinc districts of the Southwest.

R. P. Maloney, general superintendent of the Davis Coal and Coke Co., was recently appointed general manager in charge of operation, with headquarters at Thomas, W. Va.

Thomas R. Williams has been appointed deputy inspector of mines in District No. 10 in Belmont County, Ohio, to succeed L. D. Devore, resigned. The new inspector was given instructions recently by Chief Inspector J. H. Prichard.

W. K. Kavanaugh, president of the Southern Coal, Coke and Mining Co., St. Louis, Mo., was so seriously ill with pneumonia recently that it was necessary for him to be taken to St. Luke's Hospital. After a few days' treatment there, however, he was able to return to his home.

OBITUARY

Charles W. H. Peterson, for 12 years past auditor of the Steubenville Coal and Mining Co., died recently at his home in Steubenville, Ohio, from complications following an attack of tonsilitis and rheumatism. Mr. Peterson was 33 years of age at the time of his death.

INDUSTRIAL NEWS

New York, N. Y.—It was rumored on July 6 that the Reading Co. had disposed of its coal holdings to the Bethlehem Steel Co. This report however was unconfirmed.

Philadelphia, Penn.—C. D. Norton & Co., anthracite coal operator, has been granted judgment in the local courts against the Rogers-Corr Coal Co. in the sum of $4,409.85.

Lorain, Ohio—Lake cargo records were broken when the steamer "W. Grant Morden" was loaded at Lorain on June 28 with a cargo of 14,028 tons bituminous coal for Fort William, Canada.

Seattle, Wash.—The Seattle office of the Lidgerwood Manufacturing Co., of New York, will move from its present location at 807-809 Western Ave., to new quarters at 63-65 Columbia St., shortly after July 1.

Baltimore, Md.—According to a recent statement the Baltimore & Ohio R.R. during May carried a total of 3,324,188 tons of coal and coke over its lines, an increase of 461,810 tons compared with the same month of last year.

Hazleton, Penn.—The annual first-aid contest of the Lehigh Valley Coal Co. will be held on July 22, at Hazle Park. Each division will hold elimination contests prior to that date and the winning teams will take part in the contest at Hazleton.

Washington, D. C.—The shipments of coal to foreign ports for the 10 mo. ending with Apr. 30 amounted to 23,765,000 tons as compared with 19,669,000 tons for the same period a year before. Of this amount 6,072,000 tons were bunker fuel.

Knoxville, Tenn.—The lake cargo freight rate and northern inland market rate will be the principal subjects to be discussed at the semi-annual meeting of the Southern Coal Operators' Association which is to be held here on July 15 or 21.

Huntington, W. Va.—During the month of June, 1916, approximately 2,680,000 tons of coal were loaded by the Chesapeake & Ohio Railway Co. These figures surpass the daily loadings made in May, in which 2,800,000 tons were handled in 31 days.

Milwaukee, Wis.—E. R. Marker, district manager of the C. L. Smith Co., of Milwaukee, will shortly move to new quarters at 609 Wells St., Milwaukee, where he will take charge of the business of the above named company as Wisconsin representative.

St. Louis, Mo.—The Ransome Concrete Machinery Co., of New York City, has established an office in St. Louis at No. 12-18 So. 12th St., where E. G. Robinson will have a show room containing the latest types of all kinds of mixers, from the smallest bantam to the road paver.

Ebensburg, Penn.—A deal involving the transfer of 250 acres of Pittsburgh coal in Ligonier Township of Westmoreland County was recently completed by the purchase by John and Samuel Seger, of Ligonier, of the property of John B. and Joseph W. Steel, of Greenburg. The consideration was $110,556.55.

Chattanooga, Tenn.—At a meeting of the creditors of the bankrupt Dayton Coal and Iron Co., of Dayton, Tenn., it was decided to dispose of the plant at private sale, under terms agreed to by the Central Trust Co., of New York, holders of a $500,000 bond issue. It has been announced that the property is valued at approximately $1,500,000.

Buffington, Penn.—B. M. Chaplin & Co. recently began the work of building a number of houses for the H. C. Frick Coke Co. This firm also has a contract for similar houses at Edenborn and Oliphant, and recently closed another contract for the construction of 25 double houses at Bridgeport. About 100 men will be employed in this work.

Cleveland, Ohio—The consumption of bituminous coal at Cleveland has been estimated at 6,000,000 tons per year but this amount will be greatly increased this year on account of the location of many new industries and the further fact that many of the large industries will soon be required to use coal instead of gas on account of the shortage of that commodity.

Donora, Penn.—Work was recently started on the construction of a new river coal tipple at the plant of the La Belle coke works opposite Vestaburg. Coke ovens that are now in use will be continued as heretofore. The coal will also be shipped from the new river tipple to the La Belle Iron Works, at Steubenville, Ohio, where it will be used in the byproduct plant now in the course of construction.

Rockhill Furnace, Penn.—The Pennsylvania Coal and Coke Co. was recently denied its appeal in the claim of J. A. Kephart for compensation for the loss of his son while in the employ of the company. The referee decided that the son was the sole support of the father and that the latter was therefore entitled to compensation and this decision the Workmen's Compensation Board has just upheld.

Chattanooga, Tenn.—All the property of the Kentucky Coal and Iron Co., near Wiborg, Ky., has passed into the hands of the bondholders for a consideration of $1,000. At the sale W. A. Sadd, trustee, was represented by S. M. Chambliss, of this city. The property includes 1,100 acres of mineral lands, equipment, etc., and is valued at $150,000. Bonds held by the purchasers are said to amount to $50,000.

Washington, D. C.—The Bureau of Mines reports that the production of bituminous coal in the United States for the first six months of the year broke all records for any similar period, with a production of 261,000,000 tons. This is an increase of 35 per cent. over the first half of 1915 and 5 per cent. greater than the last half of the same year, and is greater by several million tons than the last half of the record year of 1913.

Washington, D. C.—The United States Civil Service Commission announces an open competitive examination to men only for a topographer at a salary of $2,100 per year. Competitors will not be assembled for examination. Persons who meet the requirements and desire this examination should at once apply for Form 1312, stating the title of the examination to the United States Civil Service Commission, Washington, D. C.

Tamaqua, Penn.—The Lehigh Coal and Navigation Co. announced on June 30, that any of its employees who enlist in the National Guard under the recent call of the Government, will receive their old positions back or jobs equally good upon return home. In case of men who have enlisted and having left dependent families, the company will assist such families with a $25 contribution each month while the men are in the U. S. service.

Pottsville, Penn.—Referee P. W. Houck ruled that money spent for powder and other supplies by a miner cannot be deducted from his salary as a basis for arriving at compensation in the event of his death while on duty, unless there was a specific contract to that effect. The case arose from the death of Jacob Reitmyers, who lost his life while employed by Coxe Bros & Co., and the board allowed his widow and two children $5,777.

Cincinnati, Ohio—Suit has been filed in the United States District Court by the Hocking Valley Ry. Co. against the Wyatt Coal Co., of Charleston, W. Va., to recover demurrage charges alleged to be due on coal shipments handled during several months in 1914. The railway company alleges that demurrage charges at the rate of $1 per car per day accumulated on coal shipped from points outside of Ohio and consigned to the defendant at Toledo to the total amount of $4,687, for which judgment is asked.

Cleveland, Ohio—A reduction of the rate on commercial coal to Cleveland from the Pittsburgh and West Virginia coal mining districts will be sought in a bill of complaints to be filed by the transportation committee of the Chamber of Commerce, it was announced recently. The plan was endorsed by the board of directors of the chamber and the expenditure of money for the hiring of lawyers to file the claim was approved. The chamber will intervene in the cases now before the commission involving a reduction in the Lake cargo rate, which is 22c. less than the commercial rate.

Harrisburg, Penn.—The Valley Smokeless Coal Co., the Ideal Coal Co. and the Sunnyside Coal Co., operating coal mines in the vicinity of Johnstown, Cambria County, have brought complaint against the Johnstown & Stoney Creek Railroad Co. and the Pennsylvania Railroad Co. They allege an increase by the first named company in its rates for the transportation of coal from 4.5c. per ton to 6.5c. effective June 15, 1916. The plaintiff complains the rates to be unreasonable and excessive and asks the Public Service Commission for reparation on shipments moving since June 15.

St. Louis, Mo.—Plans have been announced for the operation of a new barge line, with a fleet of 50 craft, between St. Louis and New Orleans. The Valley Material and Transportation Co. has been incorporated in Maine with a capital stock of $7,500,000. It is to be the holding company for several subsidiaries. The company will operate fleets of barges in tows. Each tow will push 10 or 12 barges on a trip. The company will absorb the famous Mine La Motte at Fredericktown, Mo., and will complete the Mine La Motte Railroad to the Mississippi to connect with the barge line.

Pittsburgh, Penn.—It is estimated that the new byproduct coke plants now under construction in the United States represent an investment of nearly $60,000,000. The ovens comprising these plants number about 3,000, most of which will be of large size and modern type, having a productive capacity of 12 tons of coke in 10 to 18 hr., or 12,000,000 tons of coke per year. The byproducts recoverable are estimated to have a value of $25,000,000 annually. Fifteen of the new plants are of the Koppers type, comprising over 2,300 ovens, while five, aggregating about 700 ovens, are of other types, principally the Semet-Solvay.

Columbus, Ohio—A meeting of the Southern Ohio Coal Exchange was held recently when Commissioner W. D. McKinney asked for approval of the new form arranged by him for the tabulation of production costs. Mr. McKinney had visited the most important coal exchanges in the country and secured their blank forms with the result that he formulated a blank, which contained the good points from all. The form was approved and the work of tabulating the cost of production will start at once. The members of the exchange showed their gratification over the reduction of rates and believed it was only the forerunner for greater reductions.

Cincinnati, Ohio—An important conference of traffic officials of the Cincinnati, Hamilton & Dayton, the Chesapeake & Ohio and the Hocking Valley railroads and prominent coal operators from Ohio and West Virginia was held here last week. The purpose of the conference was to determine a method of lessening the number of consignees of lake coal and thus facilitate the movement of coal to the docks and the loading on bottoms. While the conference was not entirely all that was wished it has the effect of eliminating some of the shippers and of consolidifying and harmonizing some of the shipping interests. In all more than 50 prominent shippers took part in the conference.

Cincinnati, Ohio—A meeting of West Virginia coal operators and of representatives of the rail and vessel interests handling the coal was held here a short time ago, for the purpose of arriving at some plan, if possible, for the simplification of shipping arrangements. The numbering of shipments was discussed, with reference to the possibility of handling shipments of similar coal together, although from different companies, so as to expedite loading at the lakes. However, the complications growing out of public preference for established products and other factors were found to be so numerous as to prevent any definite action, although the conference was felt to be valuable in many ways.

Washington, D. C.—The coke production in the United States in 1915 amounted to 41,581,150 short tons, or an increase as compared with 1914 of 7,025,236 tons. This is within 5,000,000 tons of the record output of 1913, according to figures compiled by the Geological Survey. Of this total 34 per cent., or 13,072,895 tons, was byproduct coke, while 66 per cent., or 27,508,255 tons, was made in beehive ovens. The increase in the output of byproduct coke in 1915 as compared with 1914 was 25 per cent. and in beehive ovens, 18 per cent. The quantity of byproduct coke made in 1915 was the greatest yet recorded, exceeding the output of 1913 by 1,358,195 tons. Three-fourths of the byproduct plants reported an increase in output, and four new plants began producing during the year.

Harrisburg, Penn.—The Conciliation Board meeting on June 30 failed to agree upon the question of legality of the contractor system as applied to machine mining, testimony in which was heard at a meeting of the Board several weeks ago upon complaint of contract miners of the Delaware, Lackawanna & Western Coal Co., and the case will go to the umpire for decision. The contention of the miners is that the operators entered into a parole agreement in New York, that they would do away with the contractor system. They also contend that the agreement, as between the operators and the anthracite mine workers' organization, abolishes the making of individual agreements between companies and "contractors." The operators contend that the parole agreement did not apply to machine-mining contracts.

Cincinnati, Ohio—At a meeting of bondholders of the Marmet Coal Co., held under the auspices of the court recently, it was suggested that the resignation of Receivers C. W. Poysell and Edwin Marmet would be acceptable, in view of the fact that the business has been operated by them at a loss. The receivers immediately offered to resign, but the court refused to permit such action at present. It was brought out that the receivers had found it necessary to pay out $75,000 raised by them to meet presing obligations, and that this had handicapped them in the operation of the mines. No plan was arrived at to improve the situation, as the bondholders seemed unwilling either to take over the properties or to finance their operation in order to insure profits. The sale of the properties is believed to be the only alternative.

Washington, D. C.—The purchase of the American and Norwegian coal mines in Spitzbergen by a Norwegian syndicate with a capital of $2,680,000, is considered of great importance to Norway, by the Department of Commerce, as it will help toward the industrial independence of that country which hitherto has had to depend on foreign sources mainly for its supply. These mines comprise an area of 386 sq.mi., with a content of at least 1,000,000,000 tons. Since 1910 about 200,000 tons of coal have been shipped from Spitzbergen to Norway, the coal being used for maritime, domestic, industrial and railway purposes. With present loading and transport facilities the annual output has been about 70,000 tons, but it is estimated that the production of coal can be increased up to an output of 200,000 tons annually, the needs of northern Norway being thereby supplied.

Market Department

General Review

Anthracite less active but still firm. Labor and car shortages restrict bituminous output and market steady. Pittsburgh district output about normal. Tendency toward higher price levels in the Middle West.

Anthracite—The market is slowing down to something approximating the customary summer basis. Some of the individual operators are offering concessions on the circular to keep coal moving, but on the whole the trade is in noticeably better shape than ordinarily at this season, due largely to the general shortage of both labor and railroad cars which are restricting the movement. Some sections of the country continue short of supplies, such as New England for instance where it is highly doubtful if it will be possible to accumulate the customary summer surpluses. The increased circulars that went into effect July 1, were a factor in slowing down orders, but there were a considerable number of June orders unfilled at the end of the month which carried over into the current month. The steam sizes are specially weak, considerable of these going into storage in spite of urgent efforts on the part of agencies to keep them moving.

Bituminous—The holidays at the opening of the week restricted industrial consumption and caused a mild reaction in the market for the time being. However, it is clear that the technical position of the market remains strong. Buyers are fully alive to the possibility of a scarcity of fuel this fall, and it is developing that many of the big consumers are conserving their reserve stocks for emergencies and buying their current requirements in the market. The prompt demand is by no means urgent, but on the other hand the labor shortage is becoming so pronounced that producers are frequently hard pressed to meet their contract obligations. Contract figures are maintained at the same level prevailing since the beginning of the contracting season, and consumers who held off buying in anticipation of more favorable conditions in the summer period, are now becoming uneasy and in many cases covering their requirements.

Lake Trade—Production in the Pittsburgh district is once more back to about normal, with the result that average prices again prevail, and outside coals have been eliminated as a factor in the situation. A fair tonnage is moving into the Lake trade, but at the inception of the labor troubles a number of good-sized contracts were transferred to other sections, and this business will be lost to the Pittsburgh district this season. The labor and car shortages continue the dominant factor in the current situation, and in view of the prospects for a serious shortage when the fall trade gets under way, some of the consuming interests are taking measures to accumulate surpluses. Suspension of the loading docks over the holidays caused a restriction in the shipments for the week, but it is expected that this month and next will see the heaviest Lake shipments of the season. As the season advances, it is clearer that buyers are losing hope of their expectations of being able to get cheap coal, and are coming into the market more and more.

Middlewest—The market continues to broaden out and underlying conditions are excellent. There are persistent rumors of heavy purchases on the part of the railroads, which has done much to stiffen up prices. As a result of the increased movement of domestic grades, some of the large steam consumers anticipating an increased supply of the steam grades, have made a determined effort to raid the market, but producers have the situation well in hand and there is not the slightest indication of any weakness. Incipient car shortages are the source of a great deal of anxiety to the shipping interests, who regard the outlook for the winter as very ominous. There is a strong tendency toward higher price-levels, and as a general rule producing interests, satisfied with current quotations, can obtain sufficient business to run full time. Lake shipments to Chicago points have been heavier than expected considering the scarcity of vessel capacity.

A Year Ago—Retailers have full stocks of anthracite and the dullest period of the year is now at hand. Bituminous exports again break all previous records, but domestic market continues under a heavy pressure. Middlewestern circulars advanced.

Business Opinions

Boston News Bureau—Carranza's note is much more moderate than was expected to be the case. He evidently sees the folly of carrying his demands too far, now that United States troops are on the border. All this is favorable to preparedness. With the withdrawal of our troops from Mexico it may now be possible to adjust all our differences. War conditions abroad are constantly growing better. The success of the allies on all the war fronts brings peace nearer. It looks as if we were nearing the end of the destructive phase of the war and coming up to the constructive phase. Before long we shall probably be figuring on probable conditions after the war. There are signs already that we are getting our house in order for such a result.

Iron Age—The unusual extent to which business now on the books of the steel companies is in the form of definite specifications is shown in the statement this week that the Steel Corporation, which for some time has had roundly 10,000,000 tons of unfilled orders, now has specifications for 6,000,000 tons. With this condition general in the trade there is no strong expectation of any material change in prices this year. Of the Russian rail inquiries, which were for 350,000 tons, independent railmakers have taken relatively little thus far. They are believed to be quite well sold on rails through the first quarter of 1917. The Steel Corporation has booked nearly 200,000 tons for Russia, deliveries running to July of next year.

Marshall Field & Co.—Current wholesale distribution of dry goods has been in greater volume than for the corresponding period of past years. Road sales for both immediate and fall delivery are running about even with the week a year ago. More customers have visited the market than during the same period of several years past. Collections are good.

American Wool and Cotton Reporter—Considerable activity is noted in the wool market, with a great demand for medium scoured and fine wools for Government purposes. Speculation has also been a feature of the market. Wools suitable for blanket purposes have experienced a little flurry. Practically all the old territory wools have been disposed of. Record prices for the season, and, in fact, for a number of years, have been paid for wool in the primary market. In the West wool dealers saw their way clear to meet the price ideas of the wool growers.

Bradstreet—While finishing the most active six months ever experienced, trade as well as industry keeps on moving at an active pace, such seasonal slack as generally intervenes at this time of the year being less conspicuous than usual, and in effect quite fully, if not wholly, offset by rush orders placed by the United States government for army supplies. Heavy expenditures by the government for numerous articles required to provision troops that may be needed in Mexico or along the border are reported by a number of cities, and in consequence the market for foodstuffs has stiffened, while at the same time foreign inquiries for steel, predicated upon fears that America may commandeer supplies of essential munitions, have come out with a rush, though it cannot be denied that purely domestic business of a staple character is rather light.

Dun—Further remarkable progress in finance, commerce and industry has been achieved during the fiscal year just ended. Domestic production and distribution have surpassed all records, with profits unprecedented, and the enormous growth in oversea trade has placed this country in the foremost position in the money markets of the world. In spite of numerous drawbacks, American enterprise steadily reaches out to new goals, the international disturbances, while making for wholesome conservatism, failing to check constructive endeavor. Commercial failures this week in the United States, are 256 against 281 last week, 295 the preceding week, and 362 the corresponding week last year.

Dry Goods Economist—This date is usually regarded as the line of demarkation between the spring and fall seasons, says the Dry Goods Economist. On some lines, such as dress fabrics of all kinds, many orders for which are placed at earlier periods, especially by large buyers. But the division applies pretty accurately to other classes of merchandise: Women's garments and neckwear, trimmings, millinery, etc.

ATLANTIC SEABOARD

BOSTON

Hampton Roads coals fairly firm though but little spot inquiry. Georges Creek continues in good supply at loading ports. Pennsylvania grades unchanged. Anthracite shipments slightly improved.

Bituminous—Pocahontas and New River shippers maintain their quotations of a week ago, very little shading of the $2.85 price being heard. Inquiry for spot coal coastwise is still light and offshore trade continues responsible for a large share of the tonnage moved. Accumulations are not now the rule.

The New England situation is rather hard to fathom just at this juncture. There ought to be some buying on the part of fairly large consumers, but practically nothing is heard from such quarters, and receipts at this end are mostly on contract. At some of the distribution points, Providence and Portland, for instance, coal factors are making regular deliveries as if on contract, but in many cases prices are adjusted from time to time.

Only a few distributors, such as are equipped with steamers and rehandling plants, are in position to undertake business of this character, and even among them there is a marked disinclination to commit themselves on deliveries more than a few months in advance. The result is that buyers who now try to engage coal for next December or January find it extremely hard to cover.

More favorable weather is helping out the receipts of Georges Creek in this market. Movement from the mines to Tidewater is still good and for those who take this grade f.o.b. there is no trouble about loading promptly. Current sales are about on the contract basis, but the shippers are undertaking no new business that calls for extended delivery. Only a small tonnage is coming forward from New York and Philadelphia in conjunction with anthracite. All-rail shipments are being further hampered by restrictions as to types of cars that will be accepted by connecting roads.

Most of the Pennsylvania shippers are struggling with shortage of labor as well as car restrictions in their effort to work up to something like normal production. The lack of boats along the coast has also had a tendency to curtail output and about the only operators who are able to get out a high percentage of their usual tonnage are those who sold their coal early to the large iron and steel plants, where the haul is short and there are fewer complications over car supply.

Anthracite—Deliveries are still much too slow to suit the retailers, who are anxious to get coal to the consumer. Movement of barges has improved somewhat with the weather, but there is still a lot of apprehension all over New England at the slowness. All-rail the same conditions apply as to bituminous and at Tidewater more time is taken to load and coal is not always available in the assortment desired by the customer. Mining, too, is more or less intermittent, the present week being one of extremely light production. Once the New England market gets behind in the summer time, it is extremely hard to catch up.

Contrary to their practice in other years, the Boston retailers are not making prices more than a month or two in advance. Most of them have all the orders they can deliver for a month to come. The remarkable thing is the lack of high-tempered criticism on the part of the public. There was practically no newspaper comment on the recent local advance of 25c. and in general there seems to be a better understanding of the difficulties that beset the coal distributor. If receipts are not large in July there will be increasing anxiety over the situation for fall and winter.

Bituminous quotations at wholesale, f.o.b. the loading ports at the points designated, are about as follows, per gross ton:

	Philadelphia	New York	Baltimore	F.o.b. Mine
Clearfields	$2.35@2.85	$2.65@3.15	.....	$1.10@1.60
Cambrias and Somersets.	2.60@3.00	2.90@3.30	.....	1.35@1.75
Georges Creek (contract)	3.07@3.17	3.27@3.37	$3.00@3.10	2.00@2.10

Pocahontas and New River, f.o.b. Norfolk and Newport News, Va., are $2.85, with occasional offerings at $2.80. On cars Providence and Boston, the range is $4.80@4.90.

NEW YORK

Demand brisk and prices firm. Egg and stove coals scarce. Bituminous situation steady. Line call satisfactory and mine quotations strong.

Anthracite—The restricted production and the fairly good demand has kept the anthracite market in good shape. Supplies at Tidewater are fair and shipments to New England are heavier owing to the removal of embargo orders; that section of the country is still in need of considerable coal and stocks are likely to be low for some time to come. Many of the mines are working six days a week but the scarcity of labor keeps production down.

Business was practically at a standstill the first half of the week. Both egg and stove coal are scarce and very little of either are being sold at less than full company circular. Some operators continue to refuse orders for either size and most of the others will make no promise of shipments within a week or ten days. Chestnut is plentiful and some concessions have been made by individual shippers. Pea coal is in light demand and there are concessions of from 25 to 35c. off company circular.

Current quotations, per gross ton, f.o.b. tidewater, at the lower ports are as follows:

	Circular	Individual		Circular	Individual
Broken	$4.95	.....	Pea	$3.75	$3.45@3.75
Egg	5.25	$5.20@5.25	Buck	2.75	2.45@2.75
Stove	5.50	5.45@5.50	Rice	2.25	2.20@2.25
Nut	5.55	5.30@5.55	Barley	1.75	1.75@2.00
			Boiler	2.20	

Quotations at the upper ports are generally 5c. higher on account of the difference in water freight rates.

Bituminous—Although bituminous coal is being sent to this market in larger quantities since the settlement of the labor troubles in the Pittsburgh district, prices are being well maintained. There has been practically no change in prices at Tidewater for the past month and contract buyers who held off expecting bargains are disappointed. They are now closing at about the same figures as those established early in May. Gas coal is scarce at Tidewater and few quotations are being heard. Shippers to New England are not in much better position to take care of their trade than a couple of months ago.

Line business is better than at Tidewater; demand is good and prices stronger. Spot coals are scarce, although they are more in evidence than a week ago.

Bunkering is strong and prices are stiff. There is good demand for export coals.

Current quotations, gross tons, f.o.b. for various grades at Tidewater follow:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein	$3.50@3.65	$3.50@3.65	$3.50@3.65	$1.95@2.10
Georges Creek Tyson	3.10@3.25	3.10@3.25	3.10@3.25	1.60@1.80
Clearfield: Medium	2.90@3.00	2.90@3.00	.....	1.40@1.50
South Forks	3.35@3.55	.....	.....	1.80@2.00
Nanty Glo	3.10@3.20	.....	.....	1.55@1.65
Somerset County: Medium	3.00@3.10	3.00@3.10	3.00@3.10	1.45@1.55
Quemahoning	.....	3.20@3.30	3.20@3.30	1.65@1.75
West Virginia Fairmont ¾	.....	3.35@3.45	3.35@3.45	1.55@1.65
Fairmont mine-run	.....	3.30@3.40	3.30@3.40	1.50@1.60
Western Maryland	.....	2.70@2.80	2.70@2.80	1.15@1.25

PHILADELPHIA

Anthracite production restricted and trade quiet. Pea price firm and stove and egg in demand, but chestnut inactive. Bituminous slowed down by holidays. Some stocking for fall.

Anthracite—The shortage of labor and cars, many of which latter have been withdrawn from the coal trade into other lines is seriously restricting the production so that there is no great surplus of coal being mined. Some individual shippers are cutting to attract business, but the concessions are nothing as compared to other years. The business now shows signs of settling down to the usual dull summer basis, especially for the largest operators, who are adhering strictly to the circular.

With the possible exception of a few special cases pea coal is selling at $2.60 for July and $2.70 for August, and by Sept. 1 it will be $2.80 for the fall and winter. Many dealers are disappointed, as they were confident of receiving offers during July and August at $2.25.

Egg continues in good demand and there is little cutting from $3.95 on high-grade coals. Stove is active and the most popular size, with the price holding firm at $4.20. Many June orders for this size were carried over for this month's shipment at an advance of 10c. per ton. Chestnut remains the off size; the demand is poor and it is the main object of attack by the price cutters.

Of the steam sizes, buckwheat is the only active grade and most of this demand is on contract business. The sales agents of the big companies are trying to force rice, boiler and barley on the market, but with practically no success and quite a quantity of these sizes are going into the storage yards.

Retail men are not complaining of dull times. Deliveries have been slower of late owing to the shortage of competent help, but their margin of profit has been larger.

The prices per gross ton f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line	Tide		Line	Tide
Broken	$3.60	$4.75	Buckwheat	$1.65	$2.55
Egg	3.95	5.05	Rice	1.00	....
Stove	4.20	5 30	Boiler	.90	1.80
Chestnut	4.30	5.35	Barley	.75	....
Pea	2.60	3.50			

Bituminous—Many manufacturing plants having dispensed with vacations this summer added a day or two to the Fourth of July holiday and consequently there was a reduction in fuel consumption over the first part of the week. However, this will soon be overcome and even now ordering is showing signs of increased activity.

There is plenty of spot coal in the market to meet all transient demands, although the movement is somewhat hampered by the new tariff rules cutting down the free time at the piers from fifteen to ten days. The only price changes have been in the Fairmont coals, which shaded off from five to ten cents on account of the increased production in the Pittsburgh district, but three-quarter gas and mine-run have not as yet been affected.

Prices per gross ton f.o.b. cars at mines are as follows:

Georges Creek Big Vein	$1.90@2.00	Fairmont gas, ¾	$1.55@1.65
South Fork Miller Vein	1.70@1.80	Fairmont gas, mine-run	1.40@1.50
Clearfield (ordinary)	1.35@1.45	Fairmont gas, slack	1.20@1.25
Somerset (ordinary)	1.30@1.40	Fairmont lump, ordinary	1.35@1.45
West Va. Freeport	1.15@1.25	Fairmont mine-run	1.20@1.30
		Fairmont slack	1.20@1.25

BALTIMORE

Anthracite prices advance, but demand is light. Bituminous market steady though quiet. Export prospects brighter.

Anthracite—July 1 saw a 20c. advance by the retail coal exchange here. There is apparently small prospect now of much demand during July, although another advance of 10c. will occur on Aug. 1.

Bituminous—The market is steady, although there is little call for fuel outside of contracts. The labor supply is growing steadily shorter and producers are having difficulty in keeping abreast of contract obligations. Thus while the demand is none too good, prices are generally steady. There is not much talk of sacrificing in any direction now, as little coal is shipped to terminals that is not covered.

Prices to the trade at the mines are about as follows: Georges Creek Tyson, $1.65; Miller Vein, $1.50 to $1.55; Quemahoning, $1.60; Latrobe, $1.25; Freeport, $1.10; Fairmont gas, three-quarter, $1.15; mine-run, $1.15, and slack, $1.10.

HAMPTON ROADS

June dumpings equal May. Exports heavy and coastwise movement good. Bunker demand fair. No demand for anthracite.

June dumpings for Hampton Roads were as follows: Norfolk & Western, 778,574; Chesapeake & Ohio, 380,518; Virginian, 307,807; total, 1,466,899. The heavy dumping of May was about equalled in June, the May figures being only some thirty thousand tons in excess of June. This is a marked increase over June of last year when a total of 965,991 tons were dumped. As compared with last month the Chesapeake & Ohio and Virginian have both lost in tonnage while the Norfolk & Western has increased its dumpings by 100,000 tons.

Exports continue heavy with every prospect for a good tonnage during July. Destinations are principally Italy and South America. The "Poleric" took 1,100 tons of house coal this week to Montevideo, this being a little out of the ordinary, as practically all coal exported is for steam purposes. Coke in small lots is still being shipped along with coal cargoes.

Coastwise shipments are steady and in good volume, principally on contracts, there being few inquiries for new business. Most of the shipments coastwise are Pocahontas and New River, though one large producer of high volatile coal ships steadily to New England. The coastwise movement to Southern ports is light. Stocks are light and about equal to requirements, some shippers being temporarily short from time to time. In view of the heavy shipments this condition is normal and stocks could not be large.

The heavy movement of Pocahontas and New River is reflected in the prices for these grades, which are firm as follows: Pocahontas and New River Mine-run $2.85@3 per gross ton; Bunker coal, $3.30 per gross ton plus trimming; Pocahontas and New River mine-run, on track, $2.75 per net ton; Anthracite, $7.50 per net ton delivered.

Railroad Tonnages—Dumpings over the local piers for the past five weeks compare as follows:

	Week Ending				
Railroad	June 3	June 10	June 17	June 24	July 1
Norfolk & Western	190,408	186,272	153,958	171,394	160,108
Chesapeake & Ohio	100,140	118,809	57,468	95,365	70,905
Virginian	67,196	81,917	39,032	83,408	.....
Totals	357,744	386,998	250,458	350,163	.....

Ocean Charters and Freights

VESSEL CLEARANCES

The following steamers have cleared from this port during the past week:

NORFOLK

Vessel	Destination	Tons
Genova[16]	T. Annunziata	5,757
S. Theodore[16]	Genoa, Italy	1,922
Normanton[16]	Genoa, Italy	1,411
D. Palmer[2]	Rio Janeiro	4,125
Scillin[16]	Savona	4,636
Poleric[10]	Montevideo	7,472
Aurania[16]	Bagnoli	5,377
Enrichetta[16]	Port Ferrajo	2,576
Achilles[9]	Cristobal	7,069
Achilles[1]	Cristobal	4,956
Tolemaid[16]	Palermo	2,850
Panama Transport[2]	Havana, Cuba	7,452
Olaf[6]	Curacao	2,666
Giulio Cesare[16]	Genoa, Italy	5,012
Daleham[6]	Montevideo	6,401
Il Piemonte[16]	Genoa, Italy	6,239
Doris[11]	Italy*	5,522
Ardgarry[13]	Buenos Aires	7,004

NEWPORT NEWS

Vessel	Destination	Tons
Arpillao[4]	Cienfuegos	3,819
Nolisement[4]	Dakar, F.W.A.	7,532
Sarkness[7]	Buenos Aires	2,713

PHILADELPHIA

Pensiero	Savona	3,600
T. F. Pollard	Bordeaux	
Munorway	Havana	
Thyra	Guantanamo	
Ridfaxe	P. Barrios	
Jose	Santa Marta	
Leonatus	Antilla	
Eurasia	Genoa	

* Gibraltar for orders.

[1] Atwater & Co.
[2] Baker Whiteley
[3] Barber & Co.
[4] Berwind-White
[5] C. G. Blake Co.
[6] Castner, Cur. & Bul.
[7] Ches. & O. Coal A. Co.
[8] Ches. & O. C. & C. Co.
[9] Crozer-Pocahontas Co.
[10] Dexter & Carpenter
[11] Flat Top Fuel Co.
[12] Hasler Brothers
[13] Houston Coal Co.
[14] Maryland C. & C. Co.
[15] New River Coal Co.
[16] Pocahontas Fuel Co.
[17] Smokeless Fuel Co.
[18] C. H. Sprague & Son
[19] White Oak Coal Co.
[20] Northern Coal Co.

OCEAN CHARTERS

Coal freight charters have been reported as follows during the past week:

VIRGINIA

Vessel	Destination	Tons	Rate
Eustace	R. Plata	2,484	$20.40
F. Thurlow	PortoRico	946	
Sasostris	W. C. Italy	1,968	30.60

PHILADELPHIA

San Antonio	Havana		
Pensirero	Italy	3,600	
E. M. Roberts	St. Johns		

BALTIMORE

Vessel	Destination	Tons	Rate
Admiral Sembree	Callao	[1]1,673	$20.00
Freja	R. Plata	1,158	
Tupy	Santos	1'768	19.50
Bonaventura[2]	Tiburon[3]	3,065	8.50

ATLANTIC RANGE

M. J. Michalinos	Italy	1,934	28.80

[1] Coke Puget Sound. [2] Early August. [3] Or

OCEAN FREIGHTS

Freight rates in general are a trifle easier than a week ago. The steamer "Tupy" was chartered during the past week to load coal from Baltimore to Santos, at $19.50 per net ton. It is reported that two steamers have been chartered from the United States to Rio at $15.60 per ton, but we understand these two charters were arranged by the British Government, consequently, the low rate. We think, however, that this will have a depressing effect on future rates to South American ports. But few steamers are asking for business to Cuba, although a number are being proposed for the Windward Islands. A number of sailing vessels have been proposed for coals to the Lower Plate, at $16 per ton.

We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
Havana	$4.25	Bermuda	$4.50@5.00
Cardenas or Sagua	5.50@6.00	Vera Cruz	6.00@6.50
Cienfuegos	5.50@5.75	Tampico	6.00@6.50
Port au Spain, Trinidad	6.25 about	Rio Janeiro	[4]18.50@19.00
St. Lucia	6.25 about	Santos*	19.00@19.50
St. Thomas	5.75@6.00	Montevideo	18.00@19.00
Barbados	6.25 about	BuenosAires orLa Plata	18.00@19.00
Kingston	5.50@6.00	Rosario	19.20@20.00
Curacao	[5]6.00 about	West Coast of Italy	28.80 about
Santiago	5.50@6.00	Barcelona**	22.80 about
Guantanamo	5.50@6.00	Chile (good port)	[3]12.00 about
Demerara		Marseilles	27.60 about

* Consignees paying dockage dues. ** Spanish dues for account of cargo.
[1] 500 tons discharge. [2] 700 tons discharge. [3] And p.c. [4] Net, 1,000 tons discharge. [5] Or other good Spanish port.
W. W. Battie & Co.'s Coal Trade Freight Report.

COASTWISE FREIGHTS

Rates from Hampton Roads to Boston have shown a somewhat easier tone this week, so much so that transportation seeking charter has been rather put to it to get anything like what is understood to be the market rate; $1.90@2 is still quoted, but charters have been made within ten days for one trip at $1.85 and large bottoms have been offered at $1.80.

At the same time such sales as that of the Shawmut Steamship Co. of the steamers "Penobscot," "M. E. Harper" and "F. J. Lisman" to go offshore is not an indication of lower freights. These were all coastwise colliers and have a deadweight capacity of about 4,000 tons each.

Barges on Lond Island Sound for New York loading still command 85@90c.

LAKE MARKETS

PITTSBURGH

District operating substantially full, labor troubles being over for the time being. Fair shipments, and prices for prompt coal back to normal.

While mine operations in the Pittsburgh district are not fully up to capacity, or even altogether up to the best rate attained prior to the recent labor troubles, the output is regarded as substantially up to necessary requirements and the market has resumed approximately a normal gait. Prices are down to such a level that outside coal cannot come into the district and competitive conditions between the different districts have returned to normal.

No definite information is available as to the number of miners that left the district while the trouble was on, but the number probably was not large, and practically all the men in the district are now at work, and have been since early last week. Shipments on contracts with line consumers are being made in a satisfactory manner and a fair tonnage is being despatched for Lake shipment. It should be recalled that when the labor troubles started a few Lake interests placed contracts in other districts, being forced to contract for the season, rather than for a short period, in order to secure a favorable price.

The circular price remains at $1.50, but substantially all the contract business was put through some time ago, chiefly at cuts from the circular figures. Prompt coal is now quotable as follows: Slack, 90c.@$1; mine-run, $1.30@1.40; ¾-in., $1.40@1.50; 1¼-in., $1.50@1.60, per net ton at mine, Pittsburgh district. At these prices there is not much activity.

BUFFALO

Scarcity of men which is expected to grow worse. High price for Ohio coal. Anthracite will be very short next fall. Demand for bituminous light.

Bituminous—The demand is not heavy. Large amounts are going forward on contract, but single orders are still difficult to get as consumers who are not getting what they want on contracts are as a rule well stocked up. Jobbers find it difficult to get enough coal. The feature of the bituminous trade is the advance in Ohio coal. At first it sold about 40c. under Pittsburgh, but now, with the price up fairly to a level with Pittsburgh and the latter coal beginning to come back it will not be easy to hold the trade.

There is a shortage of labor everywhere. Some mines would take a half more miners than they have if they could get them, and all are short. Should the demand increase materially the shippers would be unable to meet it.

Prices are steady, with slack scarce. Quotations:

	Pittsburgh	Allegheny Valley	Penn Smokeless
Lump	$2.95	$2.75	$2.80
Three-quarter	2.85	2.60	.....
Mine run	2.75	2.50	2.60
Slack	2.40	2.30	2.60

Prices are per net ton, except east of Rochester and Kingston, Ont., where they are per gross ton.

Anthracite—There is not much demand for actual consumption and little is expected till fall. The shippers are urging retailers to take all they can lay down and complaining that so little is coming forward for Lake shipment. The independent operators are working every man they can get and predicting a big premium for their coal next fall and winter. The Western movement is apparently increasing some and likely enough sufficient coal will be forwarded to meet the winter needs. Of late the small ports have been more heavily represented than usual. They do not commonly take much coal in midsummer.

Anthracite shipments for June by lake were 309,210 tons, as against 618,236 tons for June last season. For the season to July the shipments were 870,606 tons, as compared with 1,421,378 tons last season. Some allowance should be made for the fact that the heaviest shipper is sending considerable coal to Erie, Penn., for loading, while the new dock and car dump are building here.

CLEVELAND

Settlement of Pittsburgh strike softens the market.

With practically every mine in Pittsburgh and Youghiogheny fields working, the demand for coal at fancy prices stopped. The consumers are doing the usual buying but are bearing down on prices. Slack is back to a normal price for July.

When all mines are working in the Pittsburgh and Youghiogheny fields they ship an average of 600 cars daily to the Lakes. This means that No. 8 Lake coal is to be side-tracked while Lake shippers who load both grades catch up on Pittsburgh and Youghiogheny. At Cleveland there were only 200 cars of Lake coal the first of the week as compared with an average of around 700. This condition has naturally put considerable No. 8 on the market for rail consignment and the price has dropped accordingly.

Following are the market prices f.o.b. Cleveland:

	Three-quarter	Mine-run	Slack		Three-quarter	Mine-run	Slack
No. 8.....	$2.10	$2.00	$1.90	Youghiogheny	$2.60	$2.50	.....
Cambridge...	2.10	2.00	1.85	Pittsburgh...	2.60	2.50	.....
Middle Dist..	2.00	1.90	1.80	Pocahontas...	....	2.70	.....
Hocking.....	....	....	1.80	Fairmont....	2.10	2.00	$1.90

Fairmont lump coal is quoted at $3.45.

DETROIT

Lack of interest and small orders for steam coal. Domestic sizes and anthracite are sluggish. Pittsburgh district resumes Lake shipments.

Bituminous—More or less irregularity of orders and apparent lack of interest on the part of consumers, continue the features of the steam coal trade. Though current requirements absorb considerable coal, wholesalers find the situation unsatisfactory. Orders are principally for nut, pea and slack and the price is held at about 90c. at the mines, with mine-run at $1.15 and three-quarter lump at about $1.25.

There is little buying of domestic coal, either by consumers or retailers. Consignment coal, apparently is not a depressing influence just now, though there is considerable of it.

Anthracite—Householders are seemingly holding off on orders for anthracite and retailers show no great amount of anxiety to increase their stocks.

Lake Trade—With mines of the Pittsburgh district again in operation, movement of coal from that section for Lake shipment is attaining considerable volume. July and August are expected to develope the heaviest coal movement of the season to upper lake ports. Suspension of operations at loading docks July 4, caused a reduction in shipments for the week. Shippers to ports on Lake Michigan find few vessels available even at a rate more than double that of last season.

COLUMBUS

Steam business and Lake trade continue firm. Prices are generally steady. Some increase in domestic trade. Car shortage growing worse.

There is a good demand for steam grades and the price list is generally well maintained. Buying in the open market is quite general. One of the worst features of the current situation is the growing car shortage. All coal carrying roads are unable to supply sufficient cars and as a result there is a curtailment of production in most of the Ohio districts.

Domestic trade shows signs of awakening. Dealers in the rural districts are now doing better, preparatory to the threshing season. City dealers also report a better stocking movement. Pocahontas is in fair demand at circular figures and there is a good demand for West Virginia splints. Anthracite is one of the strongest points in the market. Hocking grades are not being stocked to any extent. Retailers' supplies are not large as they are loath to stock up under present conditions.

Lake trade continues active in every direction. Boats are not plentiful although the supply is better than earlier in the season. The car shortage is interfering with the Lake movement. Docks at the upper Lake ports are generally free from congestion. Lake prices remain firm in every way.

Railroads are taking a larger amount of fuel and the same is true of large manufacturing concerns. In fact manufacturing continues to expand, especially in iron and steel lines.

Prices on short ton, f.o.b. mines are as follows:

	Hocking	Pomeroy	East Ohio		Hocking	Pomeroy	East Ohio
Re-screened lump..	$1.60	$1.70	.....	Egg.....	$1.30	$1.35	....
Inch and a quarter.	1.50	1.50	$1.40	Mine-run.....	1.20	1.20	$1.15
Three-quarter-inch	1.40	1.40	1.30	Nut, pea and slack.	.90	.90	.90
Nut.....	1.30	1.30	.....	Coarse slack.....	.80	.80	.80

CINCINNATI

Improvement in demand continues. Car and labor shortage and the Lake movement are strong factors.

The advance of the season is having its expected effect on the market, although a stronger tone has been in evidence for some days. The eagerness with which the retail trade has been buying indicates that expectations of being able to get cheap coal to fill domestic orders has disappeared.

Steam buyers are for the most part covered by contracts. There is very little spot coal offered at bargain prices, as the Lake trade is now absorbing considerable quantities of coal. The market at present could readily take care of much more coal than is being produced.

LOUISVILLE

Contract demand supplies most of business. Movement continues fairly heavy. Labor situation hopeful.

Movement of coals in Eastern Kentucky continues heavy, though the bulk of it is on contracts. Steam coals continue in brisk demand although at July prices, which promise to be held to fairly well, stocking is not expected to be general. No developments in the labor situation in the Eastern Kentucky field are reported, while in Western Kentucky, although an apparent failure to reach an agreement is noted, both sides seem confident of early adjustment of differences.

Eastern Kentucky coals, f.o.b. mines, at the July scale, are offered around $1.60 for block, $1.30 for round, $1@1.05 for mine-run and 75@80c. for nut and slack. Western Kentucky slack is in demand at 65@70c.

COKE

CONNELLSVILLE

Additional second-half furnace coke contracts made, and at lower prices. Buying nearly finished. Spot coke unchanged despite holiday. Production and shipments off slightly.

The report noted in last letter that a contract for furnace coke for second half had been put through at $2.35 is confirmed and it is learned that other business has been put through at the same figure, this now representing the minimum of the second-half market, against $2.50 well maintained until a fortnight ago, and $2.75 asked when the recent buying movement started.

For July, and also for July and August, $2.50 has readily been obtained. The stronger position of early than extended delivery is due to the prospective advent of more byproduct ovens, and this principle works out perfectly in actual practice, for the two consumers who bought for July and for July and August respectively, did so because they are completing byproduct ovens which will take them out of the merchant coke market for later deliveries.

About 60,000 tons a month is represented in the most recent contracts, a portion being for short terms, while as large a tonnage was closed early in June, making about 125,000 tons a month done in the past four or five weeks, with a few second-half contracts closed earlier in the year, and many of the buyers being covered by single contracts for the entire year. Only a relatively negligible tonnage is still to be covered.

The spot furnace coke market has thus far reflected none of the strength usually developed around Independence Day on account of the restriction in output that then occurs. The furnaces seem to have been in comfortable position, but may be more active buyers by the end of the week. We quote: Spot furnace, $2.40@2.50; contract, $2.35@2.50; prompt foundry, $3.25@3.50; contract, $3.50, per net ton at ovens.

The "Courier" reports production in the Connellsville and Lower Connellsville region in the week ended June 24 at 417,540 tons, a decrease of 15,636 tons, and shipments at 420,709 tons, a decrease of 12,921 tons.

Buffalo—The trade is not holding up well. Some of the ovens are shutting down and going back to the direct coal trade. It appears to be a matter of over-production, though, for the furnaces are running as strong as ever, and iron ore is moving rapidly. It is said that Solvay coke is cutting into regular furnace grades badly. Prices are weak at $5.10 for Connellsville foundry, $4.30 for furnace, $3.70 for high sulphur and $3.45 for stock.

Chicago—A slightly easier tone has prevailed on Eastern foundry coke. Ovens are still unable to satisfy the demand for domestic sizes. Prices range about the same as last week, being as follows per net ton, f.o.b. cars Chicago: Connellsville, $6@6.25; Wise County, $6@6.25; Byproduct foundry, $6@6.25; Byproduct domestic, $4.95@5.20; gas house, $4.50@4.60.

St. Louis—The demand for coke for the past week has been a little quieter. All of the plants using furnace coke are covered for some months ahead, and are satisfied for the present.

MIDDLE WESTERN

GENERAL REVIEW

July trade opens up quietly. Domestic buying improved. Specialty coals maintain strong position.

The month of June closed without any particular flurry, domestic demand having improved notably from the country and steam coals moving along with the same briskness that has prevailed so persistently this spring. Underlying conditions are strong and far surpass last year. It is thought that a decided impetus in buying will occur from the middle of July to the first of August.

Increased calls for domestic coal have resulted from the threshing trade. Some of the Southern Illinois operators have a good deal of domestic tonnage already booked for July shipment. Lake shipments have been heavy despite the shortage of bottoms. Complaints are made by Chicago retailers that labor is very scarce for handling general yard work, and premiums are being paid. Sporadic car shortages are reported here and there which looks bad for the future; if shortages occur now with only fifty per cent. production, the situation will necessarily be much worse as the fall months approach.

CHICAGO

Domestic calls light. Screenings strong. Anthracite slightly improved. Smokeless softer.

It is said the Burlington road has made a contract with the Franklin County operators for storage coal to be taken prior to Aug. 1 at $1.20 for steam lump and egg; under regular contract running throughout the year the lump price will be $1.32, mine-run $1.15, screenings, 90c. It is reported that the only concession made to the Burlington by the operators was on the price of steam lump, which was reduced from $1.35 to $1.32.

Operating time of Williamson County mines has improved on account of railroads taking more tonnage. Many orders are coming in for July shipment of Franklin County domestic sizes, and there is less unbilled coal on track; the increased activity is due to retailers getting ready for the harvest demands.

The market for Central Illinois coals has widened considerably, and it is anticipated that the latter part of this month will show a big increase in the movement of domestic sizes.

Indiana block has been moving freely for threshing trade and most of the mines are operating about three days per week. Steam coal has been shipped in increased quantities from the Clinton field. Screenings are strong at around $1 per ton.

Smokeless mine-run seems to be holding its own, but prepared sizes are softer. Concessions have been made to move spot shipments of lump and egg to avoid demurrage. Reduced shipments to the Lakes undoubtedly causes freer offerings in Chicago.

Orders for anthracite are increasing owing to the fact that dealers were anxious to get under cover at the June prices.

Quotations in the Chicago market are as follows:

	Williamson and Franklin Co.	Springfield	Carterville	Clinton	Knox and Greene Cos.
Lump	$1.55@1.65	$1.45@1.50	$1.40@1.55	$1.45@1.60	$1.50
Steam lump	1.35	1.30@1.35	....	1.35@1.45	1.30@1.35
2½ and 3-in. lump	....	....	....	1.40@1.50	1.40@1.50
1¼-in. lump	....	....	....	1.35@1.45	....
Egg	1.55@1.65	1.20@1.25	1.40@1.55	1.45@1.50	1.50
Nut	....	1.20@1.25	....	1.35@1.45	1.35@1.45
No. 1 washed	1.55@1.60	....	1.50@1.60	....	....
No. 2 washed	1.45@1.50	....	.90@1.00	....	....
No. 1 nut	1.55@1.65	....	....	....	....
No. 2 nut	1.40@1.45	....	....	....	....
Mine-run	1.25	1.15	....	1.15@1.25	1.15@1.25
Screenings	.90@1.00	.90@ .95	....	.95@1.00	.95@1.00

	Harrisburg & Saline Co.	E. Kentucky	Pocah. & W.Va.Smok'l.	Penna. Smokeless	Hocking
Lump	$1.55@1.65	$1.50@1.85	$1.60@1.90	$1.50@1.75	$1.75
1¼-in. lump	1.30@1.35	1.25@1.35	....	....	1.60
Egg	1.55@1.65	1.20@1.40	1.60@1.90	1.50@1.75	1.50@1.60
Nut	....	....	1.45	1.35@1.45	....
No. 1 nut	1.55@1.65	....	....	....	....
No. 2 nut	1.45	....	....	....	....
Mine-run	1.25	1.10@1.15	1.25@1.35	1.25@1.35	1.25
Screenings	.90@1.00	.90@ .95	....	....	....

ST. LOUIS

July brings a spurt in the market. Prices advance and mine operations increase. Operators in control of the situation.

Quite a few orders accumulated during the last week or ten days and with the market a little short of coal, especially on steam sizes the situation is somewhat stiffer. Numerous advances were made there being a general advance on domestic coals 10c. a ton. Some of the large steam buyers are looking for a reduction in prices, owing to a slightly increased movement of lump but the operators have the situation well in hand and not the slightest weakness has developed. All the standard operators willing to meet the present prices can run almost full time. Quotations have advanced 5c to 10c. on steam grades particularly no lump and egg.

Franklin County mines are only running three or four days a week but prices are on a relatively higher basis than the other districts. Operators have a large volume of domestic business on their books for July shipment and it will shortly be a question of getting enough coal to go around. Williamson County coals are showing more signs of life in the open

market where the business has been light up to the present time. Anthracite is in rather light demand.

Prices on a number of domestic coals were advanced on the first of July. The Franklin and Williamson County operators and the anthracite companies have all advanced their circulars 10c. a ton on the first of the month.

The market is quotable on the following basis per net ton, f.o.b. mines:

	Franklin County	Williamson	Staunton and Montgomery	Intermediate	Standard
6-in. lump	$1.65	$1.35@1.55	$1.25	$1.25	$1 00
6x3-in egg	1.65	1.35@1.55	1.25	1.25	.95
3x2-in. nut	1.65	1.35@1.55	1.25	1.25	.90
No. 2 nut	1.50	1.10	1.00	1.10	.85
No. 3 nut	1.35	1.20	.....	.....	.....
No. 4 nut	1.30	1.15	.....	.....	.....
No. 5 nut	.75	.70	.....	.....	.....
Screenings	.95	.85	.90	.85	.85
2-in. lump	.....	.....	1.15	1.00	.90
Steam egg	.....	.....	.....	.90	.90
Mine-run	1.25	1.10	.....	1.00	.90
Washed	.....	.....	.....	.....	.....
No. 1 nut	.....	1.65	1.50	1.50	1.40
No. 2 nut	.....	1.50	1.30	1.20	1.20
No. 3 nut	.....	1.35	1.25	1.20	1.20
No. 4 pea	.....	1.20	1.20	1.10	1.10
No. 5 slack	.....	.75	.75	.75	.70

PRODUCTION AND TRANSPORTATION STATISTICS

COAL MOVEMENT

Fuel shipments over 13 of the leading Eastern carriers for February and two months of 1915 and 1916 were as follows, in short tons:

	February		2 Months	
Anthracite	1915	1916	1915	1916
B. & O.	140,611	95,779	250,501	254,482
B. R. & P.	12,326	18,087	26,691	35,266
B. & Susq.	545	736	1,419	1,623
C. & O.	962	1,075	1,801	2,359
Erie	665,549	876,074	1,406,259	1,735,792
H., B. T. M.	31	59	62	97
Penn.	771,173	971,580	1,657,406	2,108,458
P. S. & N.	1,155	956	2,577	2,959
Virginian	.....	45	98	318
W. Md.	22,299	28,828	48,107	63,616
Total	1,614,651	1,993,219	3,394,921	4,204,970
Bituminous				
B. & O.	2,824,130	2,026,142	5,262,221	4,888,109
B., R. & P.	532,181	844,082	1,082,811	1,731,014
B. & Susq.	93,560	143,274	176,652	295,935
C. & O.	1,388,906	2,008,094	3,078,677	4,250,281
Erie	498,667	882,338	1,096,116	1,688,581
H., B. T. M.	72,863	105,571	157,671	218,885
N. Y. C.[1]	444,818	791,749	967,474	1,522,518
N. & W.	1,393,599	2,300,822	3,021,781	4,666,230
Penn.	3,029,055	4,201,193	6,527,991	8,515,999
P. S. & N.	185,991	286,048	411,276	418,784
Virginian	267,397	488,387	589,944	933,606
W. Md.	549,234	598,250	1,201,927	1,312,286
Total	11,280,401	14,675,950	23,574,541	30,442,228

[1] Buffalo and east.

VIRGINIAN RAILWAY

Shipments of coal over this road for April of the current year amounted to 397,612 tons, which compares with 532,185 tons for March.

NORFOLK & WESTERN

Distribution of shipments for April and May follow:

	April			May		
	Shipped	Tipple	Total	Shipped	Tipple	Total
Pocahontas.	1,337,111	11,183	1,348,294	1,445,936	12,701	1,458,637
Tug River..	343,854	1,323	345,177	374,396	1,632	376,028
Thacker....	258,659	6,546	265,205	286,491	8,718	295,209
Kenova....	74,993	7,525	82,518	86,662	8,616	95,278
Totals...	2,014,617	26,577	2,041,194	2,193,485	31,667	2,225,152

Shipments of coke, entirely from the Pocahontas field, amounted to 145,560 tons in April and 140,345 tons in May.

BALTIMORE & OHIO

The following is a statement of coal and coke tonnage moved over this system and affiliated lines during May and the previous two months:

	March		April		May	
	1916	1915	1916	1915	1916	1915
Coal.....	2,763,165	2,094,607	2,510,188	2,159,914	2,967,082	2,564,481
Coke.....	400,518	257,099	355,268	289,369	357,106	297,897
Total....	3,163,683	2,351,706	2,865,456	2,449,283	3,224,188	2,862,378

I. C. C. DECISIONS

No. 6917 and 6917 (Sub-Nos. 1 to 8). Hayden Bros. Coal Corporation et al vs. Denver & Salt Lake Railroad Co. et al. (Submitted Jan. 13, 1915. Decided Apr. 27, 1916.)

Through routes and joint rates on soft coal in carloads established from Oak Hills, Colo., and points taking the same rates, to stations in Kansas, Nebraska, Missouri, Iowa and South Dakota, on the Atchinson, Topeka & Santa Fé Ry., the Missouri Pacific Ry., the Chicago & North Western Ry., and the Chicago, St. Paul, Minneapolis & Omaha Ry. Section 15 of the act precludes the establishment of through routes and joint rates via the Union Pacific R.R. from Oak Hills to stations on the Missouri Pacific Ry. in Kansas south of Kanopolis, Kan.

No. 8217—Pocahontas Coke Co., Inc., vs. Norfolk & Western Railway Co.. Submitted Dec. 7, 1915. Decided May 2, 1916.

Charges based on rates to and from Greensboro, N. C., for the transportation of a carload of coke from Pocahontas, Va., to Greensboro, N. C., reconsigned thence to Greenville, S. C., not shown to have been unreasonable. Complaint dismissed.

Investigation and Suspension Docket No. 756—Coal to Glencoe, Mo. Submitted Feb. 10, 1916. Decided May 2, 1916.

Proposed increased rates on bituminous coal in carloads from mines on the St. Louis, Iron Mountain & Southern Ry. in Illinois to stations on the Missouri Pacific Ry. in Missouri found justified, and order of suspension vacated.

Bituminous coal to Mississippi Valley Territory. Submitted Mar. 31, 1916. Decided May 16, 1916.

1. Distance scale established in the original report, 36 I. C. C., 401, 412, modified to permit the establishment of relative rates from mines in Illinois, Kentucky and Alabama.

2. Carriers authorized to continue rates on coal from mines in Alabama to Greenville and Vicksburg, Miss., and Slidell, La., lower than rates to intermediate points.

3. Order respecting rates from mines in Illinois, Kentucky and Tennessee to junction points in Tennessee and Kentucky modified.

4. Order respecting rates from Brilliant and Blocton, Ala., to Kosciusko, Miss., modified.

No. 6399—Lehigh Valley Coal Sales Co., vs. Lehigh Valley R.R. Co. Submitted July 15, 1914. Decided May 9, 1915.

Reparation on account of services performed by complainant in connection with the transfer of interstate shipments of coal from open cars to box cars at Buffalo, N. Y., denied.

No. 6446—City of Milwaukee, vs. Chicago, Milwaukee & St. Paul Ry. Co. Submitted Apr. 27, 1915. Decided May 16, 1916.

Upon complaint by the city of Milwaukee that the rates on anthracite coal in carloads from Pennsylvania mines to Milwaukee are unreasonable and unduly discriminatory; Held:

1. That neither the rates all rail nor those via the car ferries across Lake Michigan have been shown to be unreasonable or to discriminate unduly against Milwaukee.

2. That the across-lake rate for local delivery at Milwaukee, which is 25c. higher than the proportional across-lake rate to Milwaukee on traffic destined beyond, has not been shown to discriminate unduly against Milwaukee. Complaint dismissed.

No. 7554—Peabody Coal Co. vs. Chicago & Eastern Illinois R.R. Co. Submitted Nov. 26, 1915. Decided May 9, 1916.

Following Appalachia Lumber Co. vs. L. & N. R.R. Co., 25 I. C. C., 193, reparation denied on certain carload shipments of bituminous coal from Marion, Ill., to Cedar Rapids, Iowa. Complaint dismissed.

I. C. C. No. 8342—Marquette Coal Co. vs. Pennsylvania R.R. Submitted Jan. 25, 1916. Decided May 31, 1916.

Shipments of coal from Bolivar, Penn., to West Albany Transfer, N. Y., for beyond, reconsigned to the Albany Southern Railroad at Stuyvesant Falls, N. Y., via Hudson, N. Y., were moved to Stuyvesant Falls through Hudson and Hudson Upper, N. Y. Defendants applied a rate of $1.90 per ton applicable from Bolivar to Hudson, declining to apply a rate of $1.90 applicable to Hudson Upper. The Albany Southern R.R. was thereby required to pay the Boston & Albany R.R. a contract charge of 15c. per ton for moving the shipment on its account from Hudson to Hudson Upper and deducted 15c. per ton from complainant's price. A rate of 60c. per ton applied on coal from Hudson to Stuyvesant Falls and no rate from Hudson Upper; Held, That the legal rate was the combination rate of $2.50 per ton based on Hudson and that defendants legally applied the $1.90 rate to Hudson. Complaint dismissed.